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Deicer Source Hindcasting in an Unconfined Roadside Aquifer

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DEICER SOURCE HINDCASTING IN AN UNCONFINED ROADSIDE AQUIFER

A Master's Project Presented by
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ABSTRACT

Deicing materials that include calcium magnesium acetate (CMA), road salt, and premix are applied over a 1.2 mile section of the highway on State Route 25 (SR25) in Plymouth, Massachusetts. This part of the highway was designed to route runoff to an infiltration basin. The main goal of this research was to evaluate when and where deicer contamination infiltrated to the groundwater table at the site, with a focus on the infiltration basin. This project evaluated the steady-state hydraulics of the site, as well as the fate and transport of the deicing materials.

There are many sources of data available for modeling the Plymouth-Carver Aquifer at the site. Monthly groundwater monitoring provided hydraulic head and specific conductivity measurements and ion concentrations in groundwater sampled from wells located in and around the infiltration basin. Groundwater specific conductivity measurements were available from nine permanent conductivity points (PCPs) located in and around the basin. Slug test data collected from one deep well (BO) and one shallow well (BP) were used to confirm the calibration of the permeability of the aquifer material. A rain gauge located in the infiltration basin established the amount of precipitation that fell on the subject site area, and was also compared to data collected by the UMass-Cranberry Station located a few miles west of the basin. Surface water measurements of hydraulic head and specific conductivity collected at five to ten minute intervals at the main exit weir (West Weir) in the infiltration basin were used to characterize the volume and quality of water entering the infiltration basin.

Once the hydraulic model was calibrated, it was first used to recover a constant permeability for the aquifer. A permeability of 1.5×10^{-10} m^2 was found, a value which fell within the range indicated by the slug test data. Next, the transverse and vertical limits of deicer contamination were predicted from the model. The plume was determined by the model to be approximately 20 m wide in the east-west direction, and as deep as 12 m below the water table. This result agreed well with past studies.

The model was then used to hindcast travel times and source locations of deicing constituents in the groundwater. As expected, results confirmed that the infiltration basin is the largest source of deicer contamination at the site, and source isopleths created from

hindcasted data showed deicer infiltration peaking in the winter and in the spring. Monthly average specific conductivities of the groundwater in the basin were hindcasted with the model for a nineteen month period (which included the deicing seasons of 2002 – 2003 and 2003 – 2004) and were compared to what was observed in discharge over the exit weir. The hindcasts for the first deicing season compared well to what was observed over the weir, while the second deicing season was underestimated by the hindcasted results. However, these results may be attributed to the basin being deeply frozen over the course of that winter, thus not allowing the water discharging over the weir to infiltrate the groundwater.

The mass fluxes of each conservative deicer ion were compared to the specific conductivity fluxes as ion flux ratios for an entire year after deicing activities began (November 2002 – November 2003). The ion flux ratios found over the course of a year for Cl^- suggested a decreasing trend, which was also indicated for the water discharging over the weir by a recent study. This showed the high mobility and solubility of Cl^- compared to the other ions. Finally, the mass ratios for each deicer ion was hindcasted for the same year and compared to the composition of the deicers applied. The ratios hindcasted compared favorably to what was recorded.

This steady-state particle hindcasting analysis may be a useful tool in determining relative orders of magnitude of deicer contaminant.

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Symbol	Dimensions	Description
A_B	l^2	basin area
A_{cell}	l^2	cell area
A_E	l^2	electrode surface area
A_P	l^2	paved area captured
A_{pk}	l^2	peak area
A_x	l^2	area of cell face in x-direction
A_Z	l^2	recharge zone area
C	m/l^3	concentration
C*	m/l^3	adjusted concentration
C_i	m/l^3	ion concentration
C_r	m/l^3	recovered concentration
C_s	m/l^3	concentration of spike solution
C_w	m/l^3	concentration of water sample
D	l	distance
D_m	l^2/t	macrodispersion coefficient
D_{mol}	l^2/t	molecular diffusion coefficient
D_{mx}	l^2/t	macrodispersion coefficient in x direction
D_{my}	l^2/t	macrodispersion coefficient in y direction
D_{mz}	l^2/t	macrodispersion coefficient in z direction
d	l	maximum allowable ponding depth
E	--	efficiency of drainage system
F_{dx}	m/l^2t	diffusive solute mass flux in the x direction
F_{mx}	m/l^2t	macrodispersive flux in x direction
f	l/t	soil infiltration rate
G	t^3-C^2/m-l^2	conductance
g	l/t^2	gravitational constant
H	l	weir water level

LIST OF SYMBOLS cont.

Symbol	Dimensions	Description
h	l	hydraulic head
IS	mol/l^3	ionic strength
K	$l^{0.5}/t$	weir calibration constant
k	l^2	intrinsic permeability
L	l	length of a reach through a cell
L_E	l	distance between electrodes
L_R	l	roadway length
M_{azide}	m	mass of azide preservative
M_w	m	mass of water sample
MDL	m/l^3	(concentration) method detection limit
MW_i	m/mol	ion molecular weight
mM_i	mol/l^3	millimolar concentration of the ith ion
$m_{d,app}$	m	total deicer mass applied
$m_{ion, app}$	m	mass of conservative ion applied
m_r	m	mass of deicer recovered
Norm RMS	--	Normalized Root Mean Squared
n	--	soil porosity
P_A	l/t	annual average precipitation
Q	l^3/t	volume flow rate
Q_s	$m\text{-}l^2/t^3$	sublimative heat transfer
Q_H	$m\text{-}l^2/t^3$	sensible heat
Q_R	$m\text{-}l^2/t^3$	total incoming energy
Q_{x1}	l^3/t	volume flow rate inward, x-direction
$\vec{q}$	l/t	specific discharge vector
q_x	l/t	specific discharge in x-direction
q_y	l/t	specific discharge in y-direction
q_z	l/t	specific discharge in z-direction
R	--	recharge
R_i	l	residual of hydraulic head at i location
RMS	--	Root Mean Squared
RF	$m^2/l\text{-}t^4\text{-}C^2$	response factor
r	$m\text{-}l^2/t^3\text{-}C^2$	resistance
S_s	l^{-1}	specific storage
S_y	l^{-1}	specific yield
S	$m\text{-}l^2/t^3$	stored energy change
s	m/l^3	standard deviation of sample concentration
T_p	t	design ponding time
T^*_x	--	tortuosity of groundwater in the x direction
t	t	time
t_1	t	time particle enters cell
t_2	t	time particle exits cell
t_A	t	time when deicer 1st applied

LIST OF SYMBOLS cont.

Symbol	Dimensions	Description
t_B	t	time before new deicing season begins
t	t	time interval
U	l/t	apparent groundwater velocity
V	l^3	volume of water infiltrating groundwater
V_s	l^3	volume of spike solution added
V_w	l^3	volume of water sample
v_{xp}	l/t	x-component of particle's linear velocity
v_{x1}	l/t	x-comp of average linear velocity inward
v_{y1}	l/t	y-comp. of average linear velocity inward
v_{z1}	l/t	z-comp. of average linear velocity inward
v_{x2}	l/t	x-comp. of average linear velocity outward
v_{y2}	l/t	y-comp. of average linear velocity outward
v_{z2}	l/t	z-comp. of average linear velocity outward
$\lvert\bar{v}\rvert$	l/t	magnitude of average linear groundwater
W	l	width of a reach through a cell
W_e	l	effective width
x	l	distance in x direction
x_1	l	initial particle position in x-direction
x	l	x-dimension of cell
x_p	l	x-position of particle
X_{cal}	l	calculated hydraulic head
X_{obs}	l	observed hydraulic head
Y	--	monovalent ion activity coefficient
y	l	distance in y-direction
y	l	y-dimension of cell
z	l	distance in z-direction
z	l	z-dimension of cell
z_B	l	bedrock elevation
z_L	l	limiting streamline elevation
$\lvert z_i\rvert$	--	absolute value of the charge of the ith ion
α_x	l	longitudinal dispersivity in x-direction
α_y	l	transverse dispersivity in y-direction
α_z	l	vertical dispersivity in z-direction
β	$C^2 - t^3/m - l$	average specific conductivity
β_{mo}	$C^2 - t^2/m - l$	monthly average specific conductivity
γ	l^2	model conductance
δ	--	number of data points
ε_A	l/t	ambient recharge rate
ε_B	l/t	basin recharge rate
ε_M	l/t	monthly recharge rate
ε_R	l/t	runoff recharge rate
ζ	l	aquifer thickness
η	--	spike recovery percentage

LIST OF SYMBOLS cont.

Symbol	Dimensions	Description
θ_F	--	irreducible value
θ_u	--	water content in unsaturated zone
κ	$t^3 - C^2/m\text{-}l^3$	conductivity
κ^o	$t^3 - C^2/m\text{-}l^3$	infinite dilution conductivity
κ_{calc}	$t^3 - C^2/m\text{-}l^3$	calculated conductivity
Λ	$l^3 - C^2/C^2 - t^3$	ion mass flux ratio
$\lambda^\circ_{+i}, \lambda_{-1}$	$t^3 - C^2/m\text{-}l^2$	equivalent conductance of the ith ion
λ_{app}	--	applied ion mass ratio
λ_{hind}	--	hindcasted ion mass ratio
ν	l^2/t	kinematic viscosity
ρ	m/l^3	fluid density
ρ_s	m/l^3	dry soil density
ρ_w	m/l^3	water density
σ_{hind}	$C^2 - t^2/m$	hindcasted monthly conductivity flux
σ_{obs}	$C^2 - t^2/m$	observed monthly specific conductivity flux
σ_{ion}	m/t	hindcasted monthly ion mass flux
υ	l/t	flow pore velocity
φ	l/t	hydraulic conductivity
Ω	--	ion charge balance

LIST OF ABBREVIATIONS

Bi-CGSTAB	Bi-Conjugate Gradient Stabilized
BMPs	best management practices
BOD	biochemical oxygen demand
$Ca_3Mg_7(C2H3O2)_{20}$	calcium magnesium acetate
Ca^{+2}	calcium ion
$CaCl_2$	calcium chloride
CEE	Civil and Environmental Engineering
$CH3COO^-$	acetate ion
CO_2	carbon dioxide
Cl^-	chloride ion
CHBs	Constant Head Boundaries
CMA	calcium magnesium acetate
DCIS	directly connected impervious surfaces
DIUF	deionized, ultrafiltered
DO	dissolved oxygen
EC	electrical conductivity
EC	Environment Canada
$Fe(OH)_3$	ferric hydroxide
Fe(II) or Fe^{2+}	ferrous iron
Fe(III) or Fe^{3+}	ferric iron
FHA	Federal Highway Administration
GHBs	General Head Boundaries
GPM	gallons per minute
HCl	hydrochloric acid
HCO^{3-}	bicarbonate ion
HNO_3	nitric acid
I495	(Massachusetts) Interstate 495
IC	Ion Chromatography
K^+	potassium ion
KA	potassium acetate
KOH	potassium hydroxide
mM	millimoles
m msl	meters mean sea level
m^3/d	cubic meters per day
MADEP	Massachusetts Department of Environmental Protection
MCP	Massachusetts Contingency Plan
MGD	million gallons per day
MDL	method detection limit
Mg^{+2}	magnesium ion
$MgCl_2$	magnesium chloride
mg/L	milligrams per liter
MHD	Massachusetts Highway Department
mM	millimoles
msl	mean sea level

LIST OF ABBREVIATIONS cont.

MODFLOW	MODular finite-difference groundwater FLOW model
MODPATH	MODular PATHline model
MSA	methane sulfonic acid
MT3DMS	Modular 3-Dimension Multi-Species Transport model
Na^+	sodium ion
NaCl	sodium chloride
$NaHCO_2$	sodium formate
NaN_3	sodium azide
NCDC	National Climatic Data Center
Norm RMS	Normalized Root Mean Squared
NSDWRs	National Secondary Drinking Water Regulations
O_2	oxygen
PCP	permanent conductivity point
PVC	polyvinyl chloride
QA/QC	quality assurance/quality control
RF	response factor
RMS	Root Mean Squared
SIP	Strongly Implicit Procedure Package
SMCL	Secondary Maximum Contaminant Level
$SO4^{-2}$	sulfate ion
SOR	Slice-Successive Overrelaxation Package
SR25	(Massachusetts) State Route 25
TCA	tricarboxylic acid
TDS	total dissolved solids
TEI	The Environmental Institute
TRB	Transportation Research Board
UMass	University of Massachusetts
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
x_1	cell face perpendicular to x-direction receiving inflow
y_1	cell face perpendicular to y-direction receiving inflow
z_1	cell face perpendicular to z-direction receiving inflow
x_2	cell face perpendicular to x-direction receiving outflow
y_2	cell face perpendicular to y-direction receiving outflow
z_2	cell face perpendicular to z-direction receiving outflow

1 INTRODUCTION

1.1 PROJECT OVERVIEW

Deicing chemicals are applied to roadways to provide safe driving conditions in times of inclement weather during the winter season. The most common road deicer is sodium chloride (NaCl). More commonly known as road salt, NaCl is inexpensive and has been proven to be quick and effective at clearing ice and snow from roadways. Unfortunately, NaCl damages roadways and motor vehicles, and it has been demonstrated to negatively impact the environment. These problems have propagated the development of alternative road deicing materials like calcium magnesium acetate (CMA).

Since the 1990s, the Civil and Environmental Engineering Department at the University of Massachusetts (UMass), in cooperation with the Massachusetts Highway Department (MHD), has studied CMA as an alternative deicer along a 1,950 m (1.2 mile) stretch of State Route 25 (SR25) in Plymouth, Massachusetts. This research site location (known hereafter as "the site") was chosen due to its proximity directly upgradient of environmentally sensitive cranberry bogs. Runoff from the 1,950 m portion of SR25 that uses CMA discharges to an infiltration basin located adjacent to a rest area off the highway. The runoff ultimately infiltrates into a sandy aquifer.

CMA has been shown to be an effective deicer that minimally impacts roads and automobiles, and causes less harm to the environment (Meyer, 1999). Its contact with environmentally sensitive receptors (e.g., plant life) is limited, since the highly biodegradable nature of CMA ensures that it does not persist. However, the biodegradation of CMA causes a depletion of dissolved oxygen (DO) in groundwater and surface water, which will eventually lead to a negative impact on aquatic life. In turn, this DO depletion results in anoxic conditions that anaerobically degrade any acetate that is further loaded into the aquifer. The anaerobic degradation of acetate is facilitated by the reduction of ferric iron Fe(III), which coats soil grains, to ferrous iron Fe(II) by iron reducing bacteria. Fe(II) is more mobile and soluble in groundwater, and may precipitate out if later exposed to oxygen.

1.2 OBJECTIVES

This project continues research of the transport of deicing materials at the site. The main goal of the project was to characterize where and when runoff from the highway infiltrates the groundwater, and use these data to study the fate and transport of deicing materials in the site aquifer. The specific objectives of this project included:

- Collecting and compiling monitoring and analytical data from groundwater and surface water runoff,
- Developing a steady-state three-dimensional numerical model to predict the vertical limit of the contamination area resulting from deicing activities,
- Applying the model to hindcast the travel times and source locations of deicing constituents in groundwater,
- Establishing deicing constituents that entered the groundwater table within the infiltration basin for a nineteen month period that included two deicing seasons by hindcasting monthly isopleths, fluxes, and average specific conductivities, and

- Hindcasting ion mass fluxes, ion flux ratios, and ion mass ratios for a full year after deicing activities to determine the composition of deicer infiltrating the groundwater in the basin.

1.3 RESEARCH APPROACH

To satisfy the objectives of the project, monthly groundwater sampling and monitoring data, frequent monitoring data from permanent conductivity point (PCP) observation locations, and monitoring data logged continuously at a weir located in the infiltration basin were used. Data collection methods are discussed in Chapter 3. These data were used to calibrate the hydraulic model, which was then applied to forecast and hindcast the fate and transport of deicing constituents. Chapter 4 describes the development of the steady-state three-dimensional numerical model, while Chapter 5 presents and discusses results. Chapter 6 gives conclusions about the results found.

2 BACKGROUND

2.1 HYDROLOGY

According to Maidment (2003), the hydrologic cycle is the most important concept in hydrology, and it is illustrated in Figure 2-1 (McGraw-Hill, 2000).

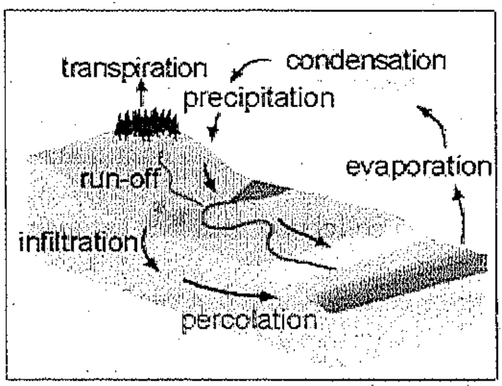

Figure 2-1 Hydrologic Cycle

(McGraw-Hill website, 2000)

Water evaporates from the oceans and land surfaces, circulating in the atmosphere as water vapor, precipitating as rain or snow, running off land surfaces, infiltrating soils and recharging the groundwater table, discharging into streams, and eventually flowing back to the oceans to repeat the cycle. Water is lost along the process cycle via natural mechanisms (e.g., evapotranspiration by trees and other vegetation) and by other means (e.g., pumping of groundwater).

The typical residence time in deeper groundwater is on the order of 10,000 yrs, while in shallower groundwater the residence time is on the order of 100 yrs. Groundwater hydraulic principles are discussed in Chapter 4.

2.1.1 Precipitation

Precipitation is the efflux of water and ice out of the atmosphere as rain and snow, occurring as a mass of air is lifted up through an undisturbed air mass in the troposphere. Precipitation exhibits tremendous variability in time and space (Maidment, 1993). Precipitation can be measured with devices that include rain gauges, disdrometers, dopplar radar, and satellite. Recording rain gauges include the weighting type, the float and siphon type, and the tipping bucket type (Maidment, 1993).

There are two types of hydrologic predictions: event-based and continuous-based. In an event-based prediction, the volume of discharge or runoff is estimated from a single rain event. Conversely, a continuous-based prediction simulates runoff on an uninterrupted basis, including both rain and non-rain events. Spatial estimations of rainfall are often determined from measurement devices like rain gauges. Methods of computing mean areal precipitation include the isohyetal method, the Thiessen polygon method, the station average method, and the inverse-distance squared method.

2.1.2 Snowmelt

Snowmelt is an especially important mechanism for the infiltration of water in northern climates like Massachusetts. Snow accumulates to form a snowpack on a watershed in the winter that causes large discharges in the spring when heavy rain and strong snowmelt coincide. The snowpack conservation of energy balances the efflux of heat from the snowpack with the stored energy change (Δ S) inside the snowpack:

$$Q_s + Q_H - Q_R + \Delta S = 0 \tag{2-1}$$

where Q_s is the sublimative heat transfer, Q_H is the sensible heat, and Q_R is the total incoming energy. As snow melts, water fills the available void spaces until the snowpack moisture reaches its irreducible value θ_F when it is ripe. Once the snowpack becomes ripe, it is ready to discharge snowmelt to the watershed.

2.1.3 Infiltration

Infiltration is the process of water moving into a soil via precipitation, snowmelt, runoff, or irrigation. Infiltration controls surface runoff, groundwater recharge, and the transport of chemicals in surface and subsurface waters.

Infiltration is controlled by the top surface of a soil, which will determine how easily water will be absorbed into the soil. A bare soil leads to the formation of a crust that will impede infiltration (Maidment, 1993). When the soil's ability to absorb water exceeds the discharge rate, all rain and snow will drain into the soil. If the discharge rate exceeds the surface infiltration rate, surface runoff will occur and puddles will form.

Infiltration is also affected by the movement of water through soil. More specifically, it is affected by a soil's ability to transmit water (hydraulic conductivity), and its ability to retain and release water. Smaller soil particles like silts will pack themselves together more closely than larger particles and create smaller void spaces, thus not allowing water to be transmitted as easily. On the other hand, larger soil particles like sands and gravels will act as a more permeable media for water movement. Other factors affecting infiltration include the soil temperature (i.e., if a soil is frozen, it will not allow the infiltration of water).

Infiltration can be measured areally by an analysis of rainfall-runoff data from a watershed, or with a point measurement (Maidment, 1993). Point measurement device types include ponded-water ring or cylinder, sprinkler, tension, and furrow.

2.2 HIGHWAY RUNOFF AND DRAINAGE

2.2.1 Urban Runoff Pollution

Sources of water pollution can be classified as either point sources or nonpoint sources. Point sources refer to the discharge of a contaminant from a discrete location, while nonpoint sources are large areas that cause contamination and are therefore difficult to control (Haestad, 2003). Nonpoint sources of contamination include runoff from agricultural areas and urban areas or highways. Table 2-1 (USEPA, 1993) lists some common constituents found in urban stormwater runoff, as wells as their sources and effects.

Some sources of the pollution found in urban runoff include atmospheric deposits, urban animals and birds, and nutrients from fertilizers (Novotny, 2003). However, a significant portion of the pollution in highway runoff is usually caused by automobiles. The residual contamination left by automobiles can include metals, oil, and grease. Deicing chemicals used on pavements to ensure the safe passage of automobiles in the winter also contribute to pollution in highway runoff.

Generally, the first portion of urban runoff flow contains most of the pollution. As a rule of thumb, the first 40% of runoff may contain as much as 60% of the pollution load (Novotny, 2003).

Table 2-1 Urban Runoff Pollutants

(USEPA, 1993)

Constituents	Sources	Effects
Sediments: TSS, turbidity, dissolved solids	Construction sites, urban/ agricultural runoff, landfills, septic fields	Habitat changes, stream turbidity, recreation/aesthetic loss, contaminant transport, bank erosion
Nutrients: nitrate, nitrite, ammonia, organic nitrogen, phosphate, total phosphorus	Lawn/agricultural runoff, landfills, septic fields, atmospheric deposition, erosion	Algal blooms, ammonia toxicity, nitrate toxicity
Pathogens: total and fecal coliforms, fecal streptococci, viruses, E.Coli, enterooccus	Urban/agricultural runoff, septic fields, illicit sanitary connections, domestic and wild animals	Ear/intestinal infections, shellfish bed closure, recreational/aesthetic loss
Organic enrichment: BOD, COD, TOC, DO	Urban/agricultural runoff, landfills, septic fields	DO depletion, odors, fish kills
Toxic pollutants: metals, organics	Urban/agricultural runoff, pesticides/herbicides, USTs, hazardous waste sites, landfills, illegal deposits, industrial discharges	Toxicity to humans and aquatic life, bioaccumulation in food chain
Salts: sodium chloride	Urban runoff, snowmelt	Contamination of drinking water, harmful to salt-intolerant plants

Note: TSS = total suspended solids, BOD = biochemical oxygen demand, COD = chemical oxygen demand, TOC = total organic carbon, DO = dissolved oxygen, UST = underground storage tank

2.2.2 Stormwater Management

Urbanization has not only affected the quality of surface water runoff. An acceleration in urban development has also caused an increase in the frequency and magnitude of runoff events and decreased stream base flows (Haestad, 2003). The construction of more paved areas has caused larger volumes of water to runoff as overland flow, and increased the chance of flooding. According to Maidment (1993), stormwater management first received recognition in the early 1970s. Surface runoff in urban areas has a higher velocity than in nonurban areas because impervious surfaces are smoother, resulting in faster concentrations of flow.

Structural best management practices (BMPs) are used to minimize directly connected impervious surfaces (DCIS) and encourage more local infiltration, which can help reduce pollution (Novotny, 2003). More recently, a multilevel control of stormwater has been practiced. Some of the BMPs used include the installation of porous and modular pavements, grass buffer areas and swales, percolation trenches, and infiltration basins (Maidment, 1993). Swales are typically vegetated depressions with a flat longitudinal slope and mild side slopes. Infiltration basins store stormwater until it infiltrates the bottom and sides (Novotny, 2003). Detention basins, which have an outlet structure, are also commonly used to control runoff (Haestad, 2003).

According to Maidment (1993), infiltration basins act as a retention facility where captured runoff can directly infiltrate into the subsurface. Infiltration basins are typically constructed by building an embankment and impounding water behind it, or excavating a depression with the capacity to capture runoff from a design storm. The basin side slopes should not exceed 4:1 (horizontal: vertical) to reduce erosion. An infiltration basin is only practical if the soils are very permeable to accommodate a tributary drainage area that does not require a large area.

The maximum allowable ponding depth (d)

$$d = f \times T_p \tag{2-2}$$

is a function of the soil infiltration rate (f) and the design ponding time (T_p) (Novotny, 2003). To prevent slime formation, exfiltration time should never exceed 72 hours; if vegetation is planted in the basin, this time should be reduced to 24 to 36 hours. There is evidence that the organic debris in grass or other vegetation planted in an infiltration basin provide a habitat for insects and worms that help keep the top soil layer aerated, helping it maintain its infiltration capacity.

2.3 HIGHWAY DEICING CHEMICALS

Pavement deicing, or the application of salt and abrasives to control snow and ice, was first practiced in the United States in the 1930s (Chollar, 1989). Chemical deicing is the second most important part of a highway snow- and ice-control program after plowing, and it represents about one-third of winter maintenance budgets (Transportation Research Board TRB, 1991). Sand and gravel are abrasive materials used with deicing chemicals like salt to increase traction on icy roads, but they can clog storm water inlets and sewers (United States Environmental Protection Agency USEPA, 2004). Deicing salts lower the freezing point of water, helping to melt snow and ice accumulated on roadways. They may be applied in liquid or crystalline form, but crystalline forms are slower and longer acting deicing agents (Wegner and Yaggi, 2001). Solid deicing chemicals require moisture from snow or humidity to dissolve it into a brine solution before it can act (Wisconsin Transportation Center, 1996).

The most common road deicer is sodium chloride ($NaCl$), where mined rock salt has been crushed, screened, and treated with an anti-caking agent (Wisconsin Transportation Center, 1996). Sodium chloride is widely used because it is light (just over one ton per cubic yard) and inexpensive relative to other deicer chemicals. Furthermore, sodium chloride is easy to handle, store, and apply (TRB, 1991). Calcium chloride ($CaCl_2$), is also a common road deicing agent that is available in pellet, flake, or liquid form. While calcium chloride requires special handling and is most expensive than sodium chloride, it works more quickly and effectively below 0°C (Chollar, 1989; Wisconsin Transportation Center, 1996). Often, a combination of both sodium and calcium chlorides is used on roadways to maximize their benefits. For example, premix is a mixture of 80% NaCl and 20% CaCl, by weight typically (USGS, 1996).

Other pavement deicers include urea (the nitrogenous component of urine), magnesium chloride ($MgCl_2$), potassium acetate (KA), and sodium formate ($NaHCO_2$). Urea is slower acting than salt and not as effective at lower temperatures, and it enhances the growth of plants and algae because it acts as a fertilizer (Chollar, 1989). Hassan *et al.* (2002) found that urea caused substantially more damage to pavements than potassium acetate and sodium formate.

2.3.1 Chloride-Based Deicing Chemicals

Unfortunately, there are several drawbacks to the use of chloride-based deicing materials. The largest financial disadvantage is that chloride-based compounds are corrosive to concrete and steel, thereby damaging roadways, bridges and motor vehicles (Wisconsin Transportation Center, 1996). Additives are now being used in rock salt and calcium chloride to reduce their corrosive properties. Another approach to solving the problem has been the employment of new construction methods to reduce infrastructure corrosion. These construction methods include the use of cathodic protection for existing bridge decks; and the use of internally sealed concrete, polymer concrete, and epoxy-coated reinforcement bars for new bridge decks (Chollar, 1989).

Another important concern with chloride-based deicing chemicals is their negative impact on the environment. Regulators in the management of nonpoint-source pollution have focused on heavy metals, hydrocarbons, pathogens, and sediment from urban runoff; and nutrients from agricultural runoff. However, the impact of road salt pollution first gained attention in 1980, at which time the Federal Highway Administration (FHA) named CMA as a possible alternative to salt (TRB, 1991).

Chloride-based deicers have been shown to affect groundwater and soil, leading to negative impacts on plant and aquatic life. Chloride-based salts dissolve readily in water. While the cations in chloride-based deicers (Na^+, Ca^{+2}) will bond with negatively-charged ions or be taken up in biological processes (Na^+), Cl^- ions are less reactive ions. As a result, chloride-based deicer chemicals are highly soluble and mobile in groundwater, and they are slow to biodegrade. In other words, once these chemicals are introduced into groundwater or surface waters, they spread quickly and persist for a long period of time. This allows the development of widespread contamination plumes, and increases the probability of chloride-based deicers reaching sensitive plant and aquatic life.

Typical salt constituent concentrations in surface water runoff can reach as high as several thousand mg/L (ppm), and sometimes as high in groundwater. Elevated sodium (Na^+) levels create osmotic imbalances in plants that can result in slower water absorption, a loss of cold hardiness, and more suspectibility to disease and pests (McFarland and O'Reilly, 1991). Studies at two sites in California indicated that high levels of sodium and chloride were absorbed into plant tissues, although coarser granitic soils retained less salt ions than finer clayey soils (Gidley, 1989). Toxicity data indicated that approximately ten percent of aquatic species have the potential to be adversely affected by prolonged exposure to chloride concentrations higher than 240 mg/L (EC, 2002). Changes in aquatic species populations occur at even lower levels, with algae shifting in lake populations at chloride concentrations as low as 12 mg/L (EC, 2002).

Road salts enter the environment when snow and ice melt, when sprayed from vehicles, and as windborne powder (EC, 2002). As a preventive measure, road salts should be covered when stored to reduce loss from stockpile runoff and prevent their contamination of nearby streams, aquifers, and estuarine areas (USEPA, 2004). Salt spillage associated with loading operations also has been demonstrated to substantially increase contamination, suggesting that covered deliveries and loadings would mitigate the contamination (Ostendorf *et al.*, 2001). Road salts should be used minimally and reapplied as necessary, to prevent excess salts from being wasted.

The USEPA established a Secondary Maximum Contaminant Level (SMCL) for chloride of 250 mg/L in drinking water supplies (USEPA, 2002). However, National Secondary Drinking Water Regulations (NSDWRs) are only recommended guidelines that states may choose to enforce, and currently Massachusetts does not specify a groundwater standard for chloride (MADEP, 2005).

The negative impacts of chloride-based deicing chemicals has led to the development of more biodegradable deicer chemicals like CMA and KA. However, this study will focus exclusively on CMA as an alternative to chloride-based deicing chemicals.

2.3.2 Calcium Magnesium Acetate (CMA)

The TRB (1991) concluded that while the widespread use of CMA as an alternative to chloride-based deicers is not warranted, its cost-effectiveness on a selective basis (e.g., in environmentally-sensitive areas, on corrosion-prone bridges) should be determined on an individual basis. Vitaliano (1992) concluded that there was not enough evidence to support the fact that the use of CMA could extend the life of old bridges. CMA or $Ca_3Mg_7(C_2H_3O_2)_{20}$ acts slower as a deicer than rock salt, and it is more expensive (TRB, 1991). The average cost of road salt is $30/ton, while the cost of CMA has been estimated to range between $500 and $700 per ton (Wegner and Yaggi, 2001).

The Ontario Ministry of Transportation and Communications (Manning and Crowder, 1987) compared the application of CMA and rock salt. The application of CMA differed from that of rock salt: while the salt was spread by dropping it through a dispensing chute in the centerline of the road, the CMA became sticky upon contact with moisture, requiring that it be applied with machinery such as a slowly-rotating spinner. The report stated that the spreading characteristics were similar for both materials (e.g., both salt and CMA bounced until coming to rest), but that moisture bonded CMA to the pavement more strongly than the salt. Once the CMA was immobilized in the pavement, it was observed that additional precipitation was required to flush the CMA from the pavement. Additionally, the TRB (1988) found that less than ten percent of CMA applied in a study appeared in soil water or groundwater, suggesting that a significant portion of applied acetate can become immobilized on a soil surface so that it is not immediately transported through runoff or infiltration. Harris *et al.* (1993) noted that while salt melts into a brine solution, CMA melts to form a milky white solution. Unlike

Manning and Crowder (1987), Harris *et al.* (1993) also stated that the round shape of CMA pellets was a serious drawback, causing it to bounce off the pavement more than the angularly shaped salt particles.

CMA has been demonstrated to have minimal impact on roadways and the environment (Fritzshe, 1992). The TRB (1988) reported that various herbaceous and woody plant species survived root zone CMA concentrations up to 2,500 mg/L (ppm). A study of ten natural lakes in Northern California (Goldman *et al.*, 1989) concluded that eight of the ten lakes showed no significant response in algal biomass with the 0.1 to 10 mg/L (ppm) concentrations of CMA applied. However, some phytotoxic responses have been observed when CMA concentrations exceed 2,500 mg/L (McFarland and O'Reilly, 1991). At the Plymouth site, typical groundwater concentrations of CMA constituents are on the order of 10 and 50 mg/L (ppm), while direct surface water runoff concentrations of CMA can reach up to several thousand mg/L.

The TRB (1988) indicated that at temperatures of 10 to 20°C, most decomposition of CMA was completed within two weeks; but at 2°C, CMA took up to twice as long to degrade. Horner and Brenner (1992) also found that most decomposition of CMA occurred in two weeks, and that BOD was exerted within ten days. McFarland and O'Reilly (1991) found that the oxidation of CMA was complete within three to six days at temperatures between 10 and 20°C, although less reliably at lower temperatures. These findings may be attributed to the fact that the bacteria that degrade CMA are not as active at lower temperatures. McFarland and O'Reilly (1991) also found that most CMA was biodegraded in soil prior to reaching a receiving water, and if runoff occurred before biodegradation, only about 10% of the CMA remained after flowing approximately thirty feet.

Brenner and Horner (1992) performed laboratory and field experiments to determine the effect of CMA on aquatic and terrestrial ecosystems. The study found that 100 mg/L of CMA completely depleted DO in some receiving waters within two days at 20°C. A level of 10 mg/L of reagent-grade and corned-based CMA caused net DO depletions of approximately 4.5 and 7.0 mg/L, respectively. Brenner and Horner (1992) attributed the extra oxygen demand from the corn-based CMA to the presence of butyrate. As McFarland and O'Reilly (1991) had found earlier, while the rate of DO depletion was shown to be strongly dependent on temperature, a first-order biochemical oxygen demand (BOD) equation did not represent DO depletion well at lower temperatures. Accordingly, Brenner and Horner (1992) modeled the rate of DO depletion with a logisical-type curve that better represented the growth of bacteria.

Brenner and Horner (1992) also recommended that use of CMA be avoided where receiving waters are close to the road and are not large enough to dilute the CMA, or if they support populations sensitive to DO depletions. Another study conducted on a small creek in Oregon showed no measurable increase of BOD or Ca^{+2} and Mg^{+2} concentrations from the application of CMA to a closely paralleling highway (Tanner and Wood, 2000).

Acetate (CH_3COO^-) is mineralized by heterotrophic bacteria via the tricarboxylic acid (TCA) cycle, consuming oxygen (O_2) and forming carbon dioxide (CO_2), bicarbonate (HCO_3^-), and water (Metcalf and Eddy, 2003):

$$CH_3COO^- + 2O_2 \rightarrow CO_2 + H_2O + HCO_3^- \qquad (2\text{-}3)$$

The depletion of DO in groundwater and surface water from the degradation of CMA will eventually lead to a negative impact on aquatic life. Additionally, the DO depletion results in an anoxic condition that anaerobically degrades any acetate that is further loaded into the aquifer. The anaerobic degradation of acetate is facilitated by the reduction of ferric iron Fe(III), which coats soil grains, to ferrous iron Fe(II) by iron reducing bacteria like *Geobacter* and *Shwanella* (Lovley, 1997).

$$CH_3COO^- + 4H_2O + 8Fe^{+3} \rightarrow 8Fe^{+2} + 2HCO_3^- + 9H^+ \qquad (2\text{-}4)$$

Ferrous iron tends to be more soluble than ferric iron. When reintroduced to aerobic conditions, soluble and suspended bivalent iron may become reoxidized to form insoluble ferric hydroxide, $Fe(OH)_3$, which precipitates out of solution (Stumm and Lee, 1960). Ferrous iron is also more mobile in groundwater than ferric iron.

2.3.3 Previous UMASS Studies

The Department of Civil and Environmental Engineering at the University of Massachusetts has conducted several years' worth of research on the transport and fate of CMA and other deicers applied at the site. The following includes a brief summary of the research that has been conducted up to date.

Ostendorf *et al.* (1993) indicated that loamy sand cover used on shoulder areas adjacent to SR25 had the ability to reduce oxygen demand by CMA on groundwater for slow snowmelt rates (10^{-7} m/sec) at 5°C under aerobic conditions. Aerobic reaction rates of CMA were slower in deeper soils than what was previously observed in the shallower sandy loam (Ostendorf *et al.*, 1995). The application of CMA as a road deicer causes aerobic degradation by microorganisms in the capillary fringe of the subsurface that can lower oxygen demand in underlying groundwater (Ostendorf *et al.*, 1997; Long, 1996). Column studies performed on intact core sleeves of loamy surficial soils from a shoulder area adjacent to SR25 indicated a rate of acetate degradation between 3.0×10^{-5} kg/m^3 and 3.6×10^{-5} kg/m^3 (Glass, 1999).

It was observed that DO remained depleted in the anoxic zone even after the CMA contamination plume had passed. The reduction of ferric iron (Fe III) to the soluble ferrous iron (Fe II) elevated iron levels in groundwater (Meyer, 1999; Sullivan, 2001).

Fauteux (2002) evaluated the hydraulics of the site aquifer with a two-dimensional analytical model with a streamline analysis, and found a contamination plume about 20 m by 65 m. The basin recharge is much greater than the ambient recharge rate, pushing contamination deeper into the aquifer. Ostendorf *et al.* (2004) determined steady, annual, and monthly recharge rates for the site aquifer.

Ward (2003) observed elevated levels of deicing constituents in pore water extracted from the unsaturated zone in the basin infiltration area nearest to the West Weir. Levels of deicing constituents shown in surface runoff long after the completion of deicing activities also suggested that CMA was becoming immobilized in the highway pavement (Ostendorf *et al.*, 2005a; Ward, 2003). Field data indicated that pavement texture affects deicing agent contamination of highway runoff at storm and seasonal time scales (Ostendorf *et al.*, 2005a). Solid deicing agents can become immobilized in a depression storage layer in the pavement, whose thickness is equal to the average pavement texture. It follows that when the pavement is rough (or the pavement thickness is increased), the probability of deicer persisting in the pavement increases accordingly.

2.4 SPECIFIC CONDUCTIVITY

Electrical conductivity (EC) or conductivity estimates the amount of total dissolved ions in water. *Standard Methods* defines conductivity as a measure of the ability of an aqueous solution to carry an electrical current that depends on the presence of ions, their concentration in water, mobility, valence, and temperature (APHA *et al.*, 1995). Conductivity is affected by geology, because the composition of rock determines the chemistry of the soil in contact with the water. Evaporation of water from the surface of a lake can also concentrate dissolved solids in water remaining, thereby increasing conductivity. Pollutants such as wastewater from sewage treatment plants and septic systems, agricultural runoff, and urban runoff can also contribute to conductivity. In urban runoff, road deicer is an important contributor to electrical conductivity.

The conductance (G) of an aqueous solution is measured between two fixed inert points. The conductance (G) is the reciprocal of resistance (r), and it is directly proportional to the electrode surface area (A_E) and inversely proportional to the distance between the electrodes (L_E) (APHA, 1995):

$$G = \frac{1}{r} = \kappa\left(\frac{A_E}{L_E}\right) \qquad (2\text{-}5)$$

The conductivity of the aqueous solution (κ) is the proportionality constant in Equation 2-5. The values of conductivity reported are standardized, with A_E equal to 1 cm^2 and L equal to 1 cm. Specific conductivity additionally standardizes the measurement to a temperature of 25°C.

For naturally occurring waters containing calcium (Ca^{2+}), magnesium (Mg^{2+}), Na^+, HCO_3^-, sulfate (SO_4^{2-}) and Cl^- ions where the total dissolved solids (TDS) is less than 2,500 mg/L, conductivity may be calculated from measured ionic concentrations

(APHA, 1995). Infinite dilution is assumed so that the contribution to conductivity by each type of ion is cumulative. First, the infinite dilute conductivity κ^o is determined:

$$\kappa^\circ = \sum |z_i|(\lambda^\circ_{+i})(mM_i) + \sum |z_i|(\lambda_{-1})(mM_i) \quad (2\text{-}6)$$

where $|z_i|$ is the absolute value of the charge of the ith ion, mM_i is the millimolar concentration of the ith ion, and $\lambda^\circ_{+i}, \lambda_{-1}$ are the equivalent conductance of the ith ion. Next, the ionic strength is calculated with Equation 2-7:

$$IS = \sum z_i^2 \frac{(mM_i)}{2000} \quad (2\text{-}7)$$

and the monovalent ion activity coefficient (Y) is found with the Davies equation for IS $\leq$ 0.5 M for temperatures between 20 and 30°C:

$$Y = 10^{-0.5[IS^{1/2} \times (1+IS^{1/2}) - 0.3IS]} \quad (2\text{-}8)$$

The final calculated conductivity κ_{calc} is thus:

$$\kappa_{calc} = \kappa^\circ Y^2 \quad (2\text{-}9)$$

where κ_{calc} is reported in units of µS/cm.

Granato and Smith (1999) estimated the concentrations of road deicer constituents in highway runoff from a semi-empirical relationship between specific conductance and the ion concentrations, based on samples collected along SR25 in Plymouth, Massachusetts. The adjusted superposition method used accounted for errors at low and high ionic concentrations. At low concentrations, the conductance can be underreported if all the contributing ions are not accounted. At high concentrations, each constituent's contribution to conductance attenuates as the ionic strength increases.

2.5 SITE DESCRIPTION

2.5.1. Site Background

The site is located in Plymouth, Massachusetts, as shown in Figure 2-2. It is located along State Route 25 (SR25), 5.5 km north of the Cape Cod Canal in southeastern Massachusetts. Massachusetts SR25 was completed in August 1987 to extend Interstate 495 (I495) to the Bourne Bridge.

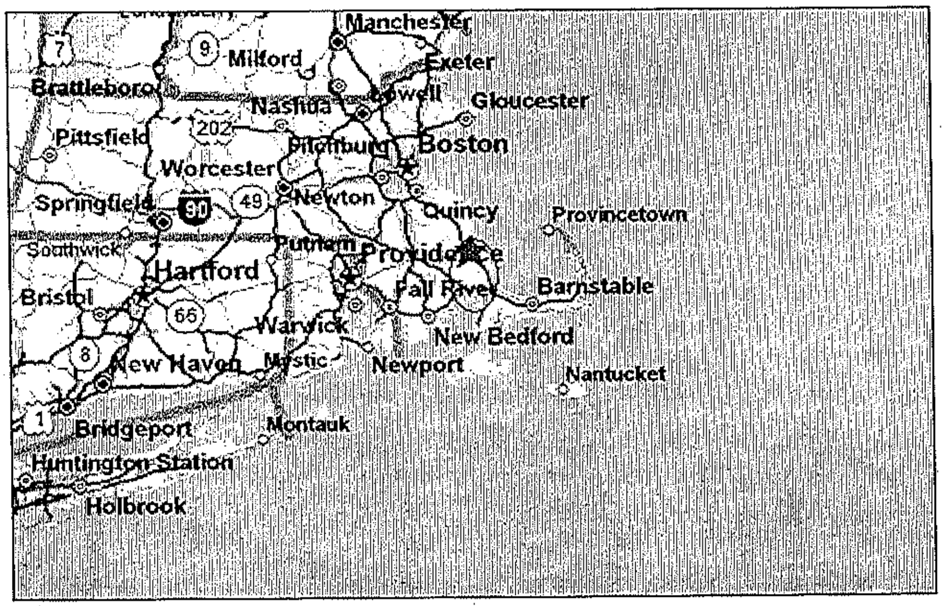

Figure 2-2 Plymouth, Massachusetts

(Mapquest website, 2005)

When the highway opened, the Massachusetts Department of Environmental Protection (MADEP) restricted the use of chloride-based deicing materials on a 1,950 m (1.2 mile) stretch of the roadway to protect sensitive cranberry bogs located directly downgradient. An infiltration basin was also constructed adjacent to this portion of the highway to restrict direct runoff from reaching the cranberry bogs. Since the winter of 1987 – 1988, this stretch of highway has been primarily treated with CMA, except in emergency situations where the application of a chloride-based deicer (e.g., $NaCl$, $CaCl_2$) was required to keep the road clear.

The site extends from the north shoulder of SR25, across the roadway, and through the infiltration basin and rest area south of the highway, as shown on Figure 2-3. Sensitive receptor areas include a replacement wetland area located to the north, a cranberry bog (Mann Bog) to the east, and Weeks Pond to the south.

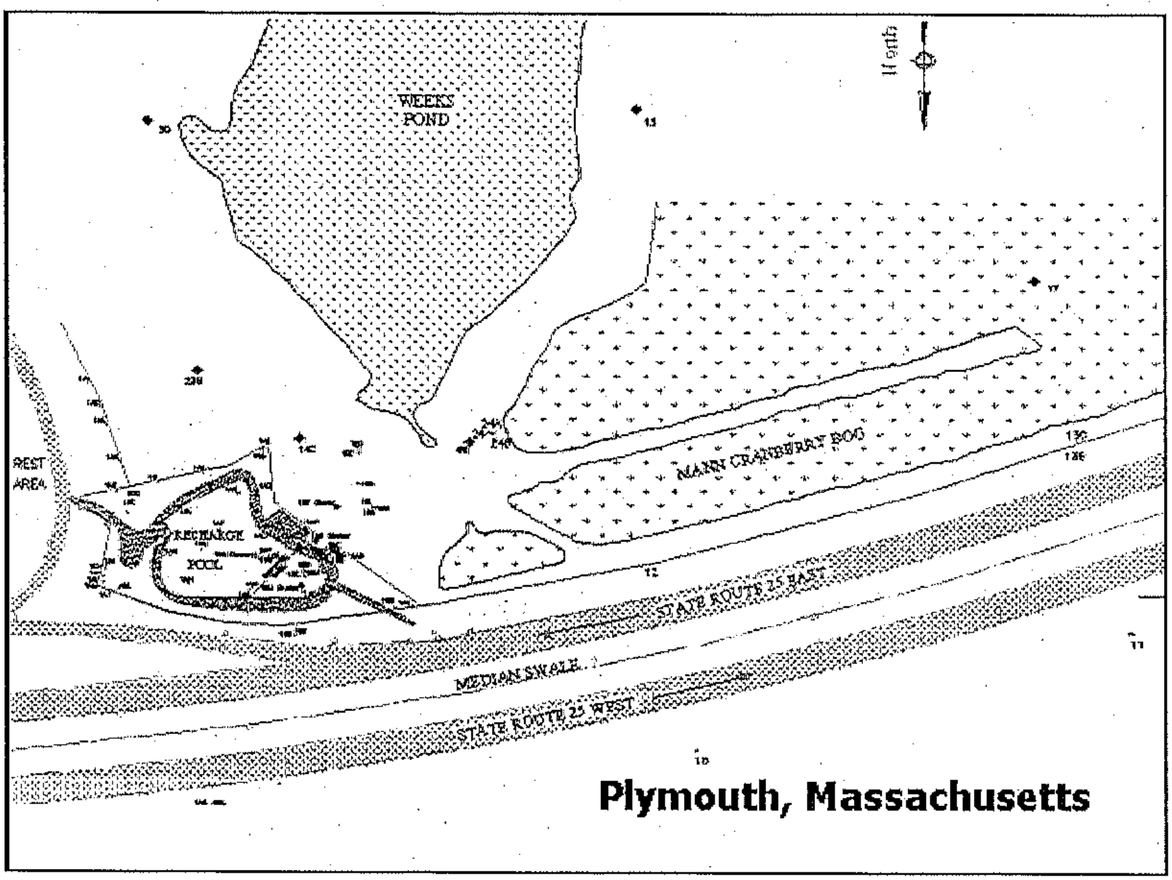

Figure 2-3 Subject Site

SR25 was constructed with six 3.66 m-wide travel lanes, two 1.2 m inner shoulders, two 3.05 m breakdown lanes, and a 30 m-wide grass median swale. The travel lanes, inner road shoulders, and travel lanes were sloped to the south. The drainage systems for the highway were designed to capture runoff into catch basins spaced 90 m apart, located down the center of the grass median swale and along the paved surface edges. The catch basins were designed to discharge captured runoff to one of two exit 90° V-notch weirs (West and East Weirs) located in the infiltration basin. Runoff from the rest area parking lot and access roads are collected in a separate drainage system that does not empty into the basin.

2.5.2 Aquifer Properties

The Plymouth-Carver aquifer that underlies the Plymouth research site is part of the Wareham Outwash Plain, which slopes to the south or southwest. Figure 2-4 shows a map of the Plymouth-Carver aquifer. The site is located in the southeastern corner of the Plymouth-Carver aquifer. The aquifer consists primarily of a fine to coarse saturated grained glacial sand and gravel, with increasing silt near the bedrock interface. The outwash plain is bounded by glacial till and bedrock hills to the west, by the Cape Cod canal and Buzzards Bay to the south, and by Cape Cod Bay to the north and east (USGS, 1996).

Bedrock is highly fractured throughout the research site, and it is predominately granitic in composition (USGS, 1996). Regional depth to bedrock ranges from approximately 100 ft above msl in the southwestern corner of the aquifer, to about 200 ft below msl along the eastern coast (Hansen and Lapham, 1992). Drilling near the infiltration pond confirmed depth to bedrock to be located at an elevation of 24.9 m below msl (Meyer, 1999). The average saturated thickness of the aquifer, or the distance from the water table to the bedrock surface, was indicated to be approximately 100 ft or 30 m (Hansen and Lapham, 1992).

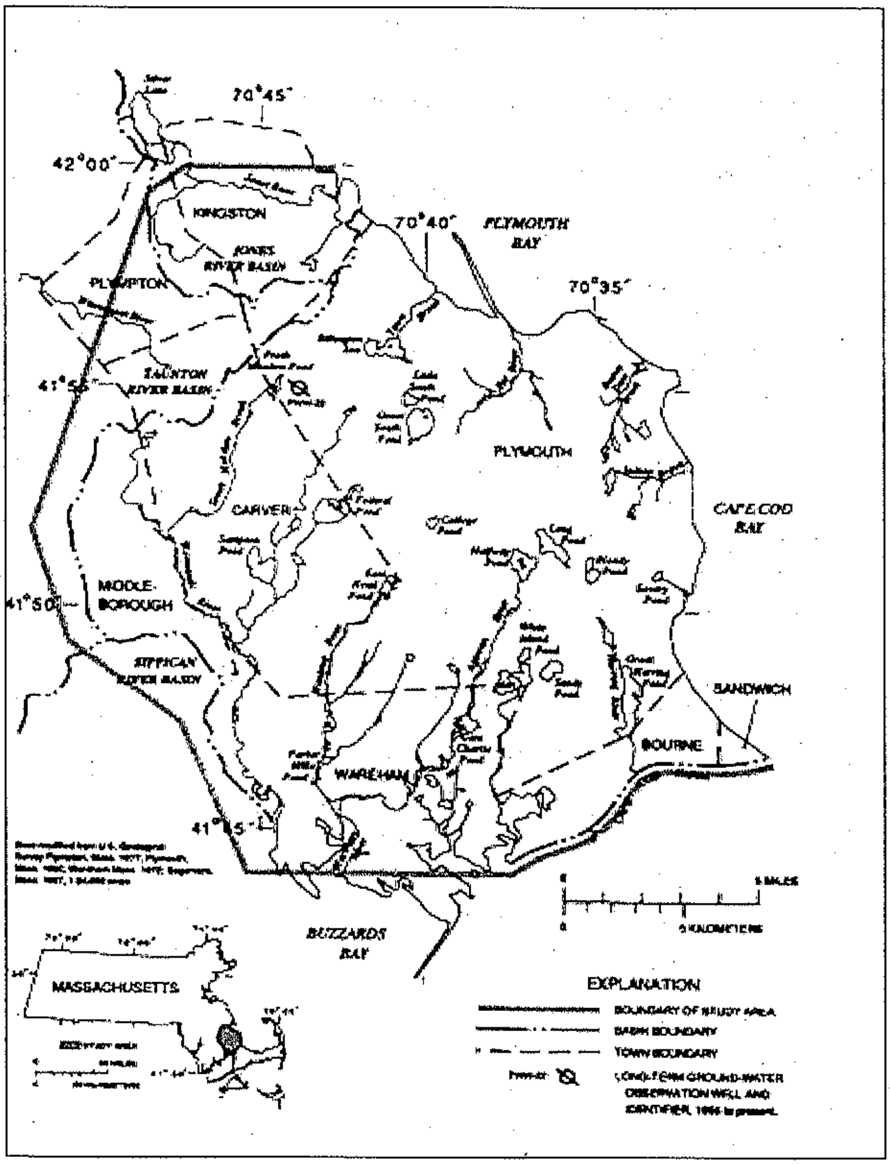

Figure 2-4 Plymouth-Carver Aquifer
(Hansen and Lapham, 1992)

Hansen and Lapham (1992) used a porosity of 0.28 when modeling the Plymouth-Carver aquifer material, and reported a mean specific yield, S_y, of 0.16. Specific yield (S_y) is the decrease in the volume of water stored in a vertical column that extends across the thickness of an aquifer of unit cross-sectional area, per unit decline in head; it is always less than the soil porosity because some water will remain held in pore spaces by capillary forces (Fitts, 2002). Permeability of the aquifer material at the research site was listed between 1.5×10^{-10} and 2.5×10^{-11} m^2.

Meyer (1999) indicated a porosity (n) of 0.33 and a calibrated permeability of 9.9×10^{-11} m^2 for the site aquifer material. Ostendorf *et al.* (2004) stated that the porosity ranged from 0.25 and 0.35 for the site aquifer material. Slug testing revealed that the permeability of the aquifer material ranged between 7.2×10^{-11} m^2 and 2.3×10^{-10} m^2 (Ostendorf *et al.*, 2005b).

According to Meyer (1999), native sand fill of the Carver coarse sand series (Mesic, uncoated Typic Quartzismment) was used to build the foundation beneath the highway road bed. Fill areas sloping away from the road bed were covered by a 0.20 m layer of loamy sand fill that was grayish brown with loose texture, which was planted with grass to reduce soil erosion. The fill layer was less than 2 m within the site area, and it was assumed not to interfere with ambient groundwater flow. The fill was uniform with a mean grain size diameter of 1.0 mm, and dry soil density ρ_s of 2,650 kg/m^3.

2.5.3 Aquifer Hydrology

The Plymouth-Carver aquifer is recharged mostly by precipitation, and to a lesser extent, from infiltration of runoff and recharge from kettle ponds (Hansen and Lapham, 1992). Fitts (2002) suggested that for the Cape Cod area, groundwater recharge could be as much as 50% of precipitation. The average annual precipitation for the region was estimated to be 1.47 m/yr (NCDC, 1991). According to Ostendorf *et al.* (2004), the ambient recharge rate (ε_A) for the site was 2.14×10^{-8} m/s (675 mm/yr), or 47% of that typical average annual precipitation rate. Hansen and Lapham (1992) estimated the rate of groundwater recharge to coarse-grained deposit to range from 26 to 28 in/yr, or 660 to 710 mm/yr. Total annual recharge to the Plymouth-Carver aquifer was estimated to average 120 MGD, or approximately 450,000 m^3/d (USGS, 1996).

Monthly rain and snowfall records from August 2003 through July 2004 were gathered from rain gauges located in and around the infiltration basin, and are summarized in Table 2-2. Appendix A contains precipitation records for this period of time.

Groundwater in the aquifer is discharged by drainage to surface water bodies, pumping for bog irrigation, evapotranspiration, and evaporation from the water table (USGS, 1996). Average groundwater discharge to rivers and streams is about 139 ft^3/sec or 4 m^3/sec (Hansen and Lapham, 1992).

The water table is relatively flat compared to land surface topography, and water table altitudes fluctuate within a range of about 1.5 to 2 ft, or 0.46 to 0.60 m (USGS, 1996). Groundwater generally flows to the south (Meyer, 1999; Sullivan, 2001).

Table 2-2 Monthly Precipitation Recorded, August 2003 – July 2004

Date	Accumulated Precipitation			
	Basin rain gauge		Cranberry Station	
	inches	m	inches	m
Aug-03	2.57	0.78	2.82	0.86
Sep-03	1.93	0.59	2.37	0.72
Oct-03	4.79	1.46	5.23	1.59
Nov-03	2.17	0.66	2.94	0.90
Dec-03	5.89	1.80	5.99	1.83
Jan-04	1.63	0.50	1.80	0.55
Feb-04	2.59	0.79	2.41	0.73
Mar-04	2.46	0.75	2.21	0.67
Apr-04	4.95	1.51	5.54	1.69
May-04	2.26	0.69	2.80	0.85
Jun-04	1.81*	0.55	1.65	0.50
Jul-04	2.26	0.69	2.73	0.83

*Note: In June 2004, the basin rain gauge had a gap in data received, and data from the Cranberry Station for that time period supplemented the basin gauge data.

2.5.4 Groundwater Quality

The chemicals of interest in this project were dissolved Na^+, Cl^-, Ca^{+2}, and Mg^{+2}. These conservative ions are found in naturally in groundwater and on soil coatings, and in the road deicers (NaCl, $CaCl_2$, CMA) applied to highway SR25. Ambient ion concentrations were determined by averaging concentrations reported from August 2003 through July 2004 at monitoring wells located upgradient of the site that were determined to be clean upon review (UB101, UB102, UB203 – UB205, UC101, UC102, UC203, UC204). These ion data are in Appendix B. The ambient concentrations were comparable to the ambient values determined by Meyer (1999), as is demonstrated in

Table 2-3. Ambient concentrations did not appear to vary seasonally. The ambient level of specific conductivity was 86 μS/cm, which was slightly higher than the value of 59 μS/cm found by Meyer (1999) for wells located in the basin area. Perhaps the specific conductivity has become slightly elevated in some of the upgradient wells (located adjacent to the highway) due to shoulder runoff from the highway.

Table 2-3 Ambient Ion Concentrations

Ion	mg/L	
	Mean Concentration August 2003 – July 2004	(Meyer, 1999) August 1997 – September 1998
Ca^{+2}	1.0	1.4
Cl^{-}	12.9	10.3
Mg^{+2}	1.0	1.5
Na^{+}	9.6	6.7

3 MATERIALS AND METHODS

There were many sources of data available for modeling the aquifer at the Plymouth site. The following section describes the field and laboratory methods used to gather data from November 2002 through November 2004. Hydraulic head data from August 2003 through July 2004 was used to calibrate the numerical model. Specific conductivity data from November 2002 through November 2004 and ion data from November 2002 through September 2004 was used in a hindcast analysis.

3.1 GROUNDWATER AND SURFACE WATER SAMPLING PROCEDURES

Groundwater samples were collected monthly from monitoring wells at the site. The samples were screened in the field for pH and specific conductance and later analyzed in the laboratory for major cations and anions. These wells were also monitored for groundwater table elevations and DO. In addition, surface water samples were collected from the exit weir located in the western part of the infiltration basin (West Weir); the preparation of the surface water samples was the same as that of the groundwater samples. The water samples used for this project were collected from ninety-one wells located in the general basin area, from November 2002 through September 2004. Figure 3-1 is a map showing the locations of the groundwater sampling wells and the West Weir. In addition, water level measurements recorded at twenty wells and seven surface water locations near the Mann cranberry bog, between August 2003 and July 2004, were used to calibrate the model.

3.1.1 Full Purge Groundwater Sampling from Observation Wells

Groundwater samples were collected in accordance with ASTM D 4448-85a (1996) procedures as part of a larger full-scale site characterization project. Sampling began by unlocking and opening the wells, removing the PVC caps, and measuring the depth to the water table with weighted measuring tape (ASTM, 1996). The depth to water measurements were recorded on a field sheet like that in Figure 3-2.

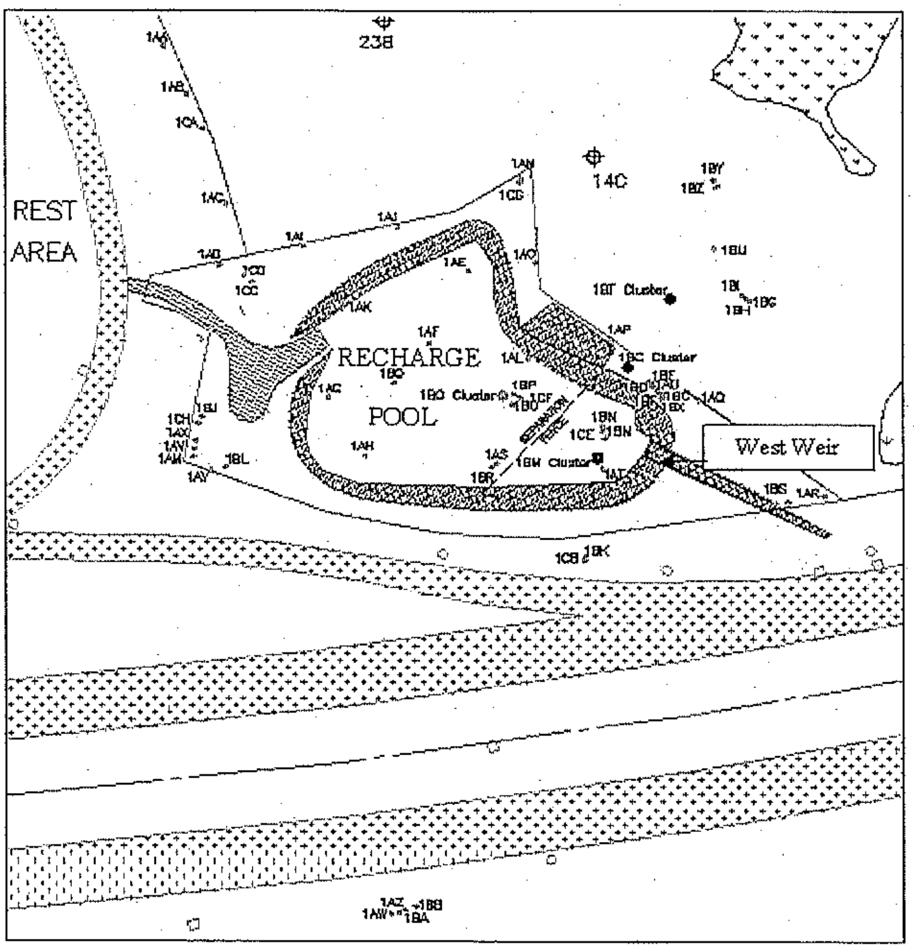

Figure 3-1 Groundwater and Surface Water Sampling Locations

Plymouth Groundwater Quality Sampling — Date: ______

Well ID	PV (gal)	Depth to Bottom of Screen (ft)	WL from TOR	DO (mg/L)	Temp. (C)	Well ID	PV (gal)	Depth to Bottom of Screen (ft)	WL from TOR	DO (mg/L)	Temp. (C)
AA	2.5	15.63				BMf	7	29.81			
AB	3	15.8				BMg	8	32.73			
AC	3	13.08				BMh	8.5	35.54			
AD	3	11.69				BN	12.5	26.44			
AE	5	11.92				BO	37	76.73			
AF	5	11.86				BOa	3	14.59			
AG	5	11.63				BOb	4	17.6			
AH	5	11.89				BOc	4.5	20.42			

Figure 3-2 Water Level Field Sheet

A one-way check valve was attached to the end of a length of polypropylene tubing. The tubing varied in length from approximately 5 to 15 ft (1.5 to 4.6 m). The tubing was connected to a four-stroke gasoline-powered surface pump (Honda Model WX10) with a CamLoc™ coupling. A 0.625-inch (1.6 cm) diameter garden hose was attached to the exit port of the pump. The hose emptied into a five-gallon bucket that was used to measure the volume of water purged from the well.

Three well volumes were purged from all wells except for the cluster wells, where 1.5 well volumes were purged. Purging the wells in this manner ensured that the samples collected were representative of fresh groundwater. Each foot (or 0.3 m) of 2-inch (5 cm) PVC well casing contains 0.16 gallons (0.6 L) of water. Water samples were collected into 400 mL plastic cups (Cole Palmer; Vernon Hills, IL). The polypropylene tube was drained before sampling a new well.

A portion of the water sample was split into vials for analysis of cations and anions as described in Section 3.2. That sample was assigned a unique number. The rest of the sample was measured for pH, temperature, and specific conductance that was recorded on a field sheet like that illustrated in Figure 3-3.

Plymouth Groundwater Quality Sampling						Date:				
Well ID	Vial ID	Cond. (μS/cm)	Temp. (C)	pH		Well ID	Vial ID	Cond. (μS/cm)	Temp. (C)	pH
AA						BMf				
AB						BMg				
AC						BMh				
AD						BN				
AE						BO				
AF						BOa				
AG						BOb				

Figure 3-3 Water Quality Field Sheet

The pH was measured with an Accumet AP-61 portable pH meter (Fisher Scientific), and the specific conductance (standardized to a temperature of 25°C) and temperature were measured with YSI 30 meter (YSI; Yellow Springs, OH). All sample vials were placed in a cooler to be transported back to the University of Massachusetts (UMass). After the well was sampled, DO was also measured before replacing the cap and locking the well.

3.1.2 Water Sample Field Preparation

Water samples to be analyzed for cations were completely extracted in the field. The samples were withdrawn with a 10 cc syringe and were filtered using a 0.45-micron in-line filter (Millipore Corporation; Bedford, MA) into numbered, 1-mL polypropylene autosample vials (National Scientific; Lawrenceville, GA). The vials were pretared with 5 μL of 12.5% nitric acid (HNO_3).

In the field, water samples to be analyzed for anions were placed into clean, numbered 20-mL vials which were pretared with 2 mL of 0.5% sodium azide (NaN_3). Sodium azide was used as a preservative to prevent the aerobic degradation of acetate during sample collection, transport, and storage. The vial was capped with a screw-on top lined with a Teflon/silicon septum.

3.2 LABORATORY PROCEDURES

Sample vials containing groundwater and surface water samples were stored in refrigerators at a temperature of 4°C during the analysis phase. The UMass Environmental Institute-Civil and Environmental Engineering (TEI-CEE) Cooperative Environmental Analysis Laboratory analyzed the cation and anion samples.

3.2.1 Laboratory Groundwater Sample Preparation

The anion samples required further preparation in the laboratory before analysis. The anion vials were weighed on a scale (Sartorius Corporation; Edgewood, NY) to an accuracy of 2 decimal places (0.01 g) before the samples were extracted again. The samples were withdrawn with a 3 cc syringe and were filtered using a 0.45-micron in-line filter (Millipore Corporation; Bedford, MA) into numbered, 2-mL glass autosample vials (National Scientific; Lawrenceville, GA).

3.2.2 Sodium, Magnesium, and Calcium Detection by Ion Chromatography

Filtered water samples were analyzed for cations that included Na^+, Mg^{2+}, and Ca^{2+} using a Dionex DX-600 Ion Chromatography (IC) System (Dionex Corporation; Sunnyvale, CA)[1]. The system included: a GP-50 gradient pump, a CD-25 conductivity detector, an EG-40 Eluent Generator, a CS12-A cation exchange column, a CSRS-ULTRA cation suppressor, and an AS50 autosampler. Dionex Peaknet Software recorded the data.

Degassed, deionized, ultrafiltered (DIUF) water and 18 mM methane sulfonic acid (MSA) were used as eluents. A cation analysis method program that was developed by Dionex detected the cations of interest. The program used a run time that ranged from 21 to 28 minutes (depending on instrument performance and the age of the column) with the 18 mM MSA eluent..

Once every thirty days, dilutions of known standard solutions were performed and run on the IC. The dilution concentrations chosen represented the concentrations that were expected to be observed. The peak area response was calibrated to the known concentration, giving elution times for each cation species and a peak area for each dilution. Calibration was also performed any time the operating parameters on the instrument changed or if the QA/QC was reported out of an acceptable range (see Section 3.6.2). The peak area for each dilution was plotted against the known concentration to develop a linear regression calibration curve. A typical cation chromatograph is on Figure 3-4, and a typical magnesium calibration curve is on Figure 3-5.

[1] Potassium was also analyzed in the cation samples, but potassium concentrations were not evaluated in this project.

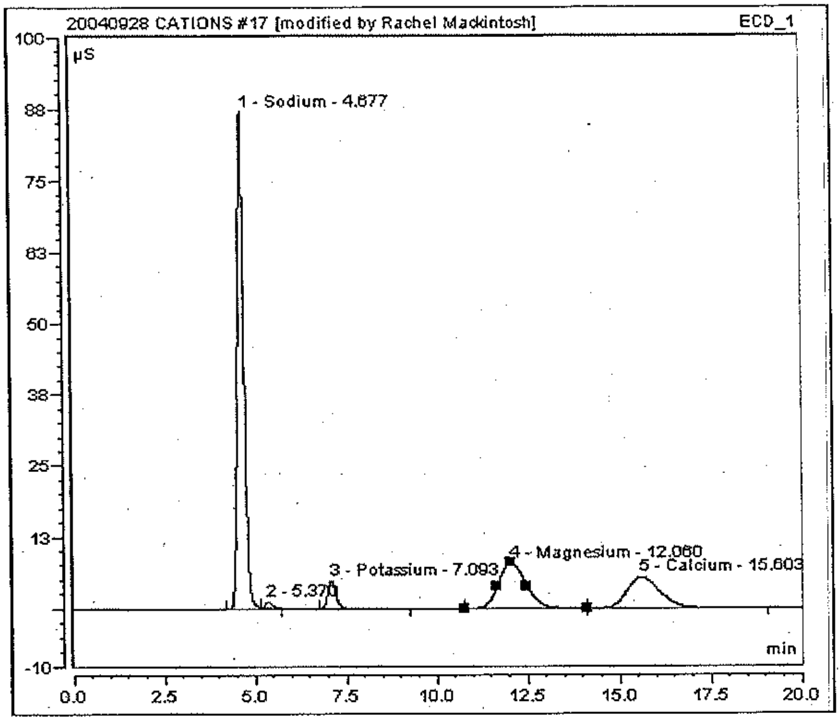

Figure 3-4 Typical Cation Chromatograph

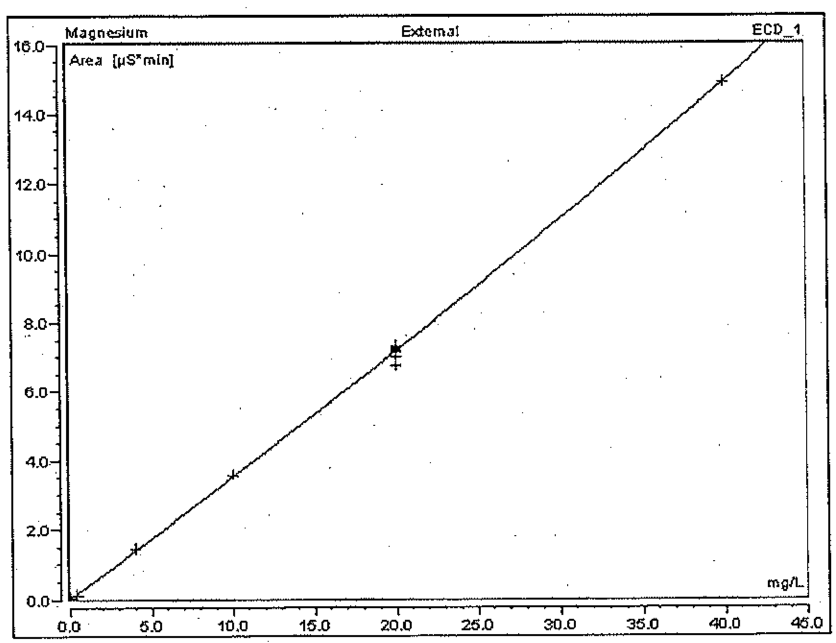

Figure 3-5 Typical Magnesium Calibration Curve

Groundwater anion concentrations were calculated based on the calibration curve and the elution times found for each cation. The concentration (C) was found as shown in Equation 3-1:

$$C = A_{pk} \times RF \tag{3-1}$$

where A_{pk} was the peak area and RF was the response factor for the ion.

3.2.3 Chloride Detection by Ion Chromatography

Filtered water samples were analyzed for anions that included Cl- using a Dionex DX-500 IC System (Dionex Corporation; Sunnyvale, CA)[2]. The system included: a GP-50 gradient pump, a CD-25 conductivity detector, an AG-15 guard column, an Ion Pac ASI-15 analytical column, an ASRS-ULTRA II anion suppressor set in recycle mode, an AS550 autosampler, and an EG eluent generator. Dionex Peaknet Software recorded the data.

Degassed DIUF water and 36 mM potassium hydroxide (KOH) were used as eluents. An anion analysis method program that was developed by Dionex detected the anions of interest.

As with the cations, dilutions of known standard solutions were performed and run on the IC once every thirty days. The dilution concentrations chosen represented the concentrations that were expected to be observed. The peak area response was calibrated to the known concentration, giving elution times for each anion species and a peak area for each dilution. Calibration was also performed any time the operating parameters on the instrument changed or if the QA/QC was reported out of an acceptable range (see

[2] Acetate was also analyzed in the anion samples, but acetate concentrations were not evaluated in this project.

Section 3.6.2). A typical anion chromatograph is on Figure 3-6, and a typical chloride calibration curve is shown on Figure 3-7.

Groundwater anion concentrations were calculated based on the calibration curve and the elution times found for each anion. The adjusted concentration (C*) found was corrected to account for dilution and pretaring, as shown in Equation 3-2:

$$C^* = A_{pk} \times RF[\frac{M_{azide} + M_w}{M_w}] \qquad (3\text{-}2)$$

where M_{azide} was the mass of the azide preservative, and M_w was the mass of the water sample.

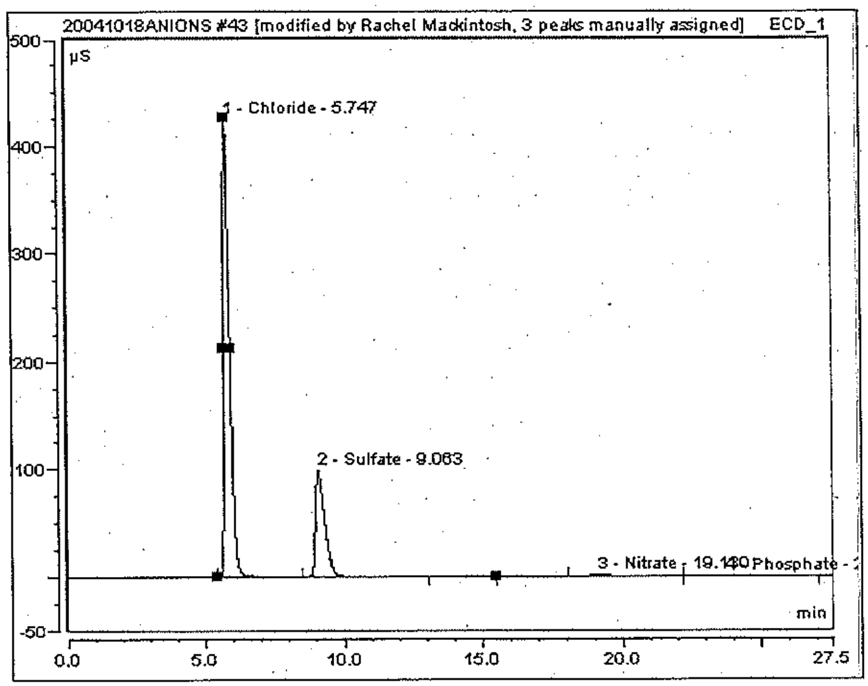

Figure 3-6 Typical Anion Chromatograph

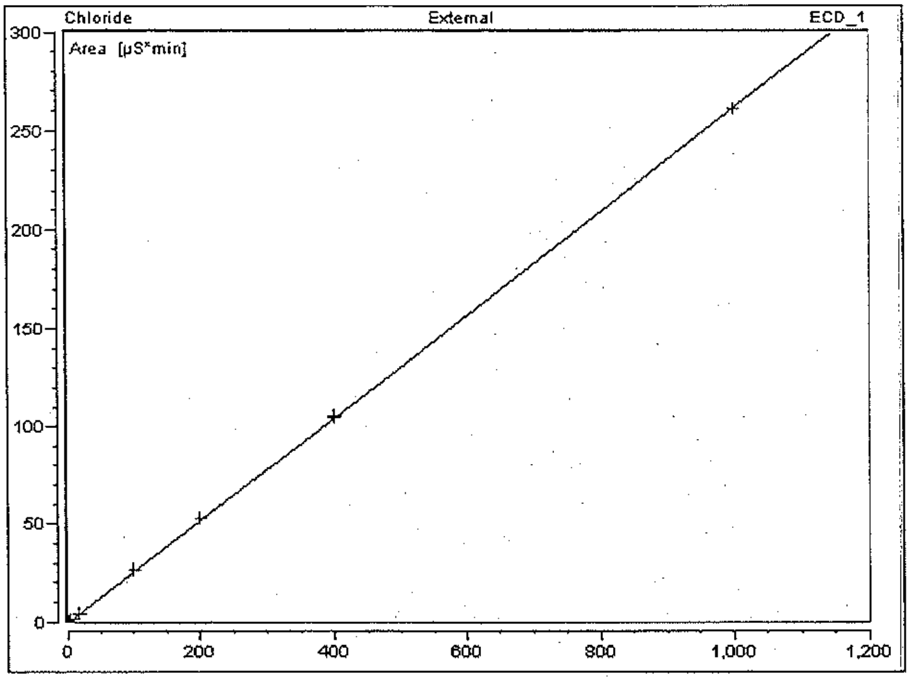

Figure 3-7 Typical Chloride Calibration Curve

3.3 PERMANENT CONDUCTIVITY POINT MEASUREMENTS

Electrical conductivity was measured at nine permanent conductivity point (PCP) locations in and around the infiltration basin, on an approximate biweekly basis. This study used PCP data from November 2002 to November 2004, which are located in Appendix C. Figure 3-8 is a map showing the PCP locations.

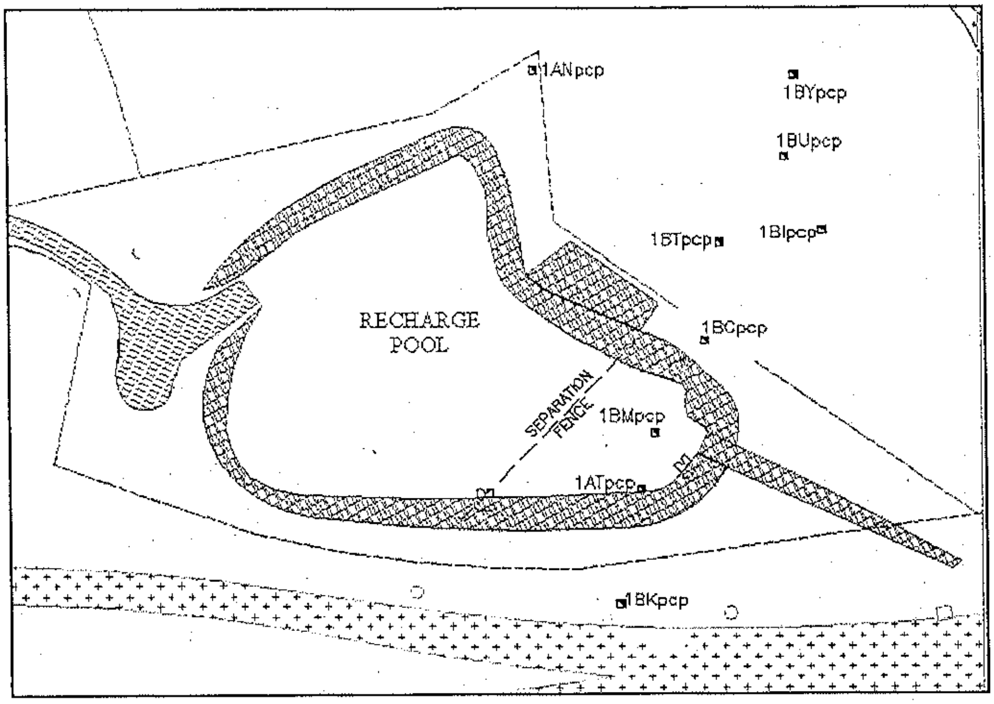

Figure 3-8 Permanent Conductivity Point Locations

The PCP system was a prototype groundwater electrical conductivity detection system developed by the UMass Geotechnical Group. The PCP system acts as a long conductivity meter permanently installed in the aquifer, and was designed to avoid the process of physically collecting a groundwater sample to measure conductivity (Kelley, 2003).

According to Kelley (2003), the PCP conductivity cell consisted of two brass screws serving as the electrodes with an electrical wire attached between the electrode. The cell was mounted to a rigid 1 inch (2.5 cm) polyvinyl (PVC) pipe. The PCP electrodes were also encased in a 2-inch (5 cm) diameter, 5-inch (12 cm) long PVC groundwater well screen with cut 5 cm (2-inch) diameter PVC well cap on the top and bottom of the screen. The parts of the lead wires from the PCP conductivity cells that stuck out of the ground were attached to a terminal block in a wooden housing unit.

A YSI Model 33 S-C-T meter (YSI; Yellow Springs, OH) was used to measure the conductivity in the field. The meter was modified with alligator clips so that the clips could be attached to the lead wires of the pcp conductivity cell to make a measurement (Kelley, 2003). The field measurements were noted on a sheet like that shown on Figure 3-9.

Number	1AT	1BM	1BC	1BT	temperature	1BU	1BI	1BY	1AN	1BK
				thermometer temp						
				surface temp						
1										
2										

Figure 3-9 PCP Field Sheet

The field measurements were converted to electrical conductivity values with conversion factors obtained through a calibration procedure. Two series of calibrations were performed on the PCP conductivity cells, both of which were performed by filling a large chamber with native sand and tap water where pore fluid was passed via a continuous flow isolated fluid system (Kelley, 2003). The electrical conductivity was increased by adding salt, and was measured simultaneously with a hand-held meter and the PCP unit. The two sets of conductivity data obtained with each device were correlated to result in conversion factors used to calculate electrical conductivity from the field data. In addition, all conductivity was standardized to a temperature of 25°C to give the specific conductivity.

3.4 WEIR MONITORING MEASUREMENTS

Runoff flow from the highway drainage systems was monitored at five to ten minute intervals using a 90° V-notch weir setup at the drainage outfall known as the West Weir[3]. This project used weir data recorded from November 2002 to May 2004, which are summarized in Appendix N. A picture of the West Weir is on Figure 3-10.

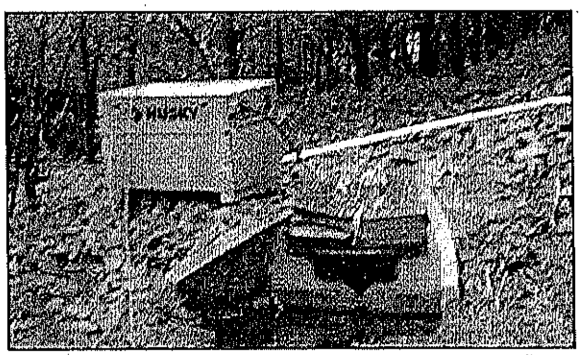

Figure 3-10 West Weir

Data recorded at the West Weir included the water level, specific conductance, and pH of the water flowing through the weir. The drainage system empties into the weir through 3-ft (0.9 m) diameter pipes. The weir was constructed by the UMass metal shop, and is approximately 4 ft (1.2 m) wide and 2.25 ft (0.7 m) tall. The point of the V-notch was approximately 6 inches (15.2 cm) from the base, opening to a maximum width of 3 ft (1 m) and a maximum height of 1.75 ft (0.5 m).

The West Weir was equipped with a model 4230 Bubble Flow Meter (ISCO; Lincoln, NE) that was primarily housed in a waterproof case, with secondary containment

[3] The East Weir saw virtually no flow during the period of record, so that only the West Weir monitoring data was evaluated.

provided in a stainless steel housing unit located adjacent to the weir. The logger was equipped with plastic tubes connecting the data logger to a location inside the weir below the water surface.

The mechanism that the flow meter used to measure the water level in the weir employed air bubbles, where an air compressor forces out a metered amount of air through a plastic tube, and the pressure needed to force the air bubbles out was recorded (Ward, 2003). The pressure was converted to a water level once the meter was calibrated for the depth of the tube in the weir. The conversion of the recorded water level or head (H) in the V-notch weir to a flow rate (Q) was performed with Equation 3-3 (Grant and Dawson, 1997):

$$Q = KH^{2.5} \tag{3-3}$$

where K was a constant that depends on the angle of the V-notch and the measurement units. For a flow rate in GPM and a head in feet, the constant K was 1122.

Specific conductance and pH were measured with a YSI 600R multi-parameter water quality sonde (YSI; Yellow Springs, OH), and recorded with the flow meter. The flow, specific conductance, and pH data were downloaded via a cellular phone hookup at the site to a modem located at UMass. The required electricity is supplied by two car batteries stored in the protective housing unit.

3.5 RAIN GAUGE

A Model 674L Logging Rain Gauge (ISCO; Lincoln, NE) was installed near the East Weir on top of a protective housing unit to record precipitation at the site as shown on Figure 3-11. This project used rain gauge precipitation data measured from August

2003 to July 2004 at this gauge, as well as a gauge located at the UMass-Cranberry Station located a few miles west of the site.

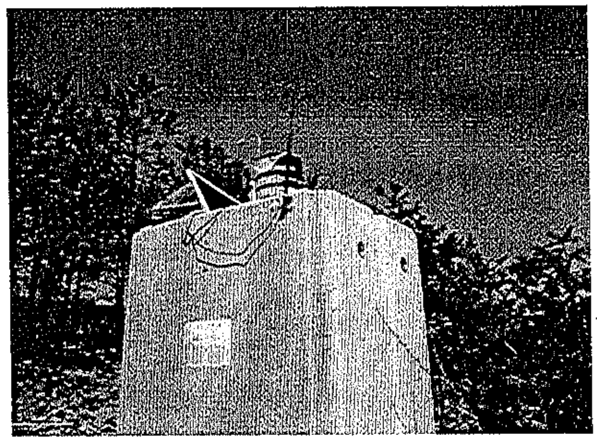

Figure 3-11 Rain Gauge Unit

The rain gauge was a 33-cm tall cylinder with a diameter of 20 cm that was constructed of stainless steel, aluminum, and plastic parts; screens protected all openings (ISCO, 1993). The rain gauge had an accuracy of ±1% of the bucket volume for precipitation rates up to 560 mm/hr.

The rain gauge used a tipping bucket with a capacity of 760 mm/hr and a sensitivity of 0.01 inches (0.25 mm). The gauge was equipped with heating pads to melt frozen precipitation. The data collected by this gauge was compared to the data obtained by the UMass-Cranberry Station located a few miles west of the site.

sample. These techniques were performed to verify the precision of the instrument. The acceptable percent difference between replicate injections and standard solutions was ±10%. If the samples exceeded this difference, the samples were analyzed again.

3.6.2.2 Water Blanks

Water blanks were analyzed at least twice when starting up the instrument, and three times at the beginning of each sample run. Water blanks were also analyzed periodically throughout sample runs. The water blank samples used degassed DIUF water; and the water blanks analyzed for cations were also treated with 0.125% HNO_3 to lower the pH below 2.

3.6.2.3 Continuing Calibration Check Standard

A standard solution with a lot number different from those used to create the calibration curve was also analyzed to verify the accuracy of the calibration curve.

3.6.2.4 Method Detection Limits

The MDL is the lowest concentration that can be reliably detected by an analytical instrument for each ion. *Standard Methods* 1030E defined the MDL as:

$$MDL = 3.14 \times s \qquad (3\text{-}5)$$

where s was the standard deviation from the sample mean of seven replicate injection samples of a standard solution with a known concentration.

To determine the MDL for each ion, seven replicate injections were alternated between the known standard solution and a water blank. The water blank replicate injection data was used to determine the level of "noise" for a particular ion. The concentration chosen to be replicated was required to be significantly higher than the level of noise observed for a particular ion.

The MDLs were recalculated every time the ion column was cleaned. The ion columns were cleaned with a mixture that included oxalic acid, acetylnitrile, and hydrochloric acid (HCl).

3.6.2.5 Laboratory Spikes

Laboratory spikes were also performed in a manner similar to the field spike procedure indicated in Section 3.6.1.2, where samples were dosed or "spiked" with a known volume of ion standard solution. The recovered ion concentration was compared to the known ion concentration of the standard solution. If the spike recovery for a particular ion did not fall within an acceptable range of 85% to 115%, the ion concentrations for that month were excluded for the project.

3.6.2.6 Ion Charge Balance Analysis

An ion charge balance (Ω) was found to test the neutrality of all water samples, according to Standard Method 1030F (APHA *et al.*, 1995):

$$\Omega = \frac{|z_+| - |z_-|}{|z_+| + |z_-|} \times 100\% \qquad (3\text{-}6)$$

The charge balances were determined as the sum of ion concentrations (C_i) divided by the ion molecular weight (MW_i):

$$\Omega = \sum \frac{C_i}{MW_i} \times 100\% \qquad (3\text{-}7)$$

An acceptable range of net charge was ±10% for this project. Any data that did not meet this standard were excluded. Charge balances are indicated with ion data used in Appendix B.

3.6.2.7 Electrical Conductivity Balance

The theoretical electrical balance was determined for each sample in accordance with *Standard Methods* 2510A (APHA *et al.*, 1995), as specified in Section 2.4, with analyzed ion concentrations. The theoretical conductivities were compared to field values, and are listed in Appendix B with corresponding ion data.

4 MODEL DEVELOPMENT

4.1 GOVERNING EQUATIONS

A mathematical model can describe three-dimensional groundwater hydraulics and contaminant fate and transport. Groundwater models are commonly applied to water supply studies and contaminant remediation systems. The steps involved in mathematically modeling groundwater flow include reviewing all existing data, developing a simple conceptual model, and simulating the conceptual model with a mathematical model (Fitts, 2002; Ahlfeld, 2003). The process of modeling is iterative.

The hydraulics of groundwater can be defined by two governing equations. For an incompressible fluid like water, the conservation of mass in a porous media is defined by:

$$\frac{\partial \rho q_x}{\partial x}+\frac{\partial \rho q_y}{\partial y}+\frac{\partial \rho q_z}{\partial z}-\rho R+\frac{\partial \rho n}{\partial t}=0 \quad (4\text{-}1)$$

where q_x, q_y, and q_z are the components of the specific discharge; R is the recharge; ρ is the density of the fluid flowing through the media (e.g., water); x, y, and z are the distances in each respective direction; and t is time. If flow is steady-state, the last term on the left-hand side of equation 4-1 may be excluded. Darcy's law describes the specific discharge through a porous media. It is defined as follows if the permeability is isotropic (Fitts, 2002):

$$\vec{q}=\frac{\rho_w g k}{v}\left(\frac{\partial h}{\partial x}+\frac{\partial h}{\partial y}+\frac{\partial h}{\partial z}\right) \quad (4\text{-}2)$$

where g is the gravitational constant, v is the dynamic or kinematic viscosity of the fluid (water), and h is hydraulic head.

When it is reasonable to assume that groundwater flow is two-dimensional in the vertical plane, a streamline analysis can be made in a vertical cross-section in the x, z plane, which is one unit thick in the y-direction. Streamlines are imaginary lines that trace the advective flow paths traveled by water molecules. LaPlace's equation for steady hydraulic head in two dimensions governs the head (Fitts, 2002):

$$\frac{\partial^2 h}{\partial x^2} + \frac{\partial^2 h}{\partial z^2} = 0 \qquad (4\text{-}3)$$

In a steady, homogeneous, isotropic (i.e. permeability is constant) aquifer, streamlines are perpendicular to lines of constant head. A flow net is a graphical representation for estimating the distribution of hydraulic heads, discharges, and streamlines in steady two-dimensional groundwater flow (Fitts, 2002). Solutions of the Laplace equation include harmonic functions and conjugate, perpendicular harmonic functions. These corresponding harmonic functions are known as stream functions (Fitts, 2002). A limiting streamline separates contaminated basin recharge water and ambient groundwater.

The transport of solute contaminants in groundwater is primarily governed by advection. However, groundwater contaminants mix and disperse due to both molecular diffusion, and mechanical dispersion caused by differences in velocities (Fitts, 2002). Molecular diffusion is governed by Fick's first law, which for the x-direction is shown as

$$F_{dx} = -nT^{*}_{x} D_{mol} \frac{\partial C}{\partial x} \qquad (4\text{-}4)$$

where F_{dx} is the diffusive solute mass flux in the x-direction, T^*_x is the tortuosity of the groundwater in the x direction, and D_{mol} is the molecular diffusion coefficient.

According to Fitts (2002), mechanical dispersion has not been shown to behave according to any similar fundamental law, since it depends on too many complex processes and factors. Mechanical dispersion is usually much larger in the direction of groundwater flow than it is transverse to flow. Mechanical dispersion depends on spatial and transient variations in velocities caused by heterogeneity of the soil medium and transient flow phenomena. An example of transient flow phenomena is recharge from urban runoff.

In light of these complexities, molecular diffusion and mechanical dispersion are often known collectively as macrodispersion, where the macrodispersive flux in the x-direction (F_{mx}) are modeled by a form of Fick's law,

$$F_{mx} = -nD_{mx}\frac{\partial C}{\partial x} \tag{4-5}$$

where D_{mx} is the macrodispersion coefficient in the x direction. It is defined as

$$D_{mx} = \alpha_x|\overline{v}| + T_x^* D_{mol} \tag{4-6}$$

where α_x is the dispersivity in the x-direction, and $|\overline{v}|$ is the magnitude of the average linear groundwater flow pore velocity (Fitts, 2002). Pore velocity (υ) is defined as

$$\upsilon = \frac{U}{n} \tag{4-7}$$

where U is the apparent or superficial velocity. Macrodispersion coefficients and dispersivities are fitting parameters, and are not representative of any real physical properties. Furthermore, the magnitude of dispersivity found will depend on the scale of the experiment used to measure it. Typical values for laboratory tests range from millimeters to centimeters, but dispersivity values can be as high as tens of meters in a field scale model. A curved coordinate system is often aligned with the flow direction for transport models, where α_x and D_{mx} refer to the longitudinal direction. Meanwhile, α_y, D_{my}, α_z, and D_{mz} apply to two orthogonal directions transverse to the longitudinal groundwater flow direction.

Contaminant transport can be represented with the three-dimensional advection-dispersion governing equation,

$$\nabla \cdot \underset{=}{D_m} \nabla C - \nabla \cdot (CU) = n \frac{\partial C}{\partial t} \tag{4-8}$$

Hydrologists often simplified the complicated expressions described into elegant analytical models. However, beginning in the 1950s, reservoir engineers and applied mathematicians experimented with numerical techniques to solve flow equations algebraically (Bredehoeft and Hall, 1995). By the 1970s, digital computers facilitated the use of cumbersome numerical solutions to simultaneously solve the expressions for flow and later contamination, thereby allowing for a more accurate representation of aquifers.

A steady-state numerical model of the research site was created to simulate groundwater flow and contaminant transport in the site aquifer. MODFLOW is a three-dimensional, block-centered modular finite-difference groundwater flow model code developed by the United States Geological Survey, or USGS (Waterloo, 2003). A version of the original model, MODFLOW-2000, was selected to simulate groundwater flow. MODPATH was used to simulate the advective transport of deicer particles and generate streamlines that were plotted as contours. Visual MODFLOW 3.1.0 is a software package that was used as a graphical interface to support the numeric engines that run the numerical model.

The finite-difference method solves algebraic equations based on the governing equations 4-1 and 4-2. Figure 4-1 (Pollack, 1989) gives a finite-difference cell defining the x-y-z and i-j-k coordinate systems.

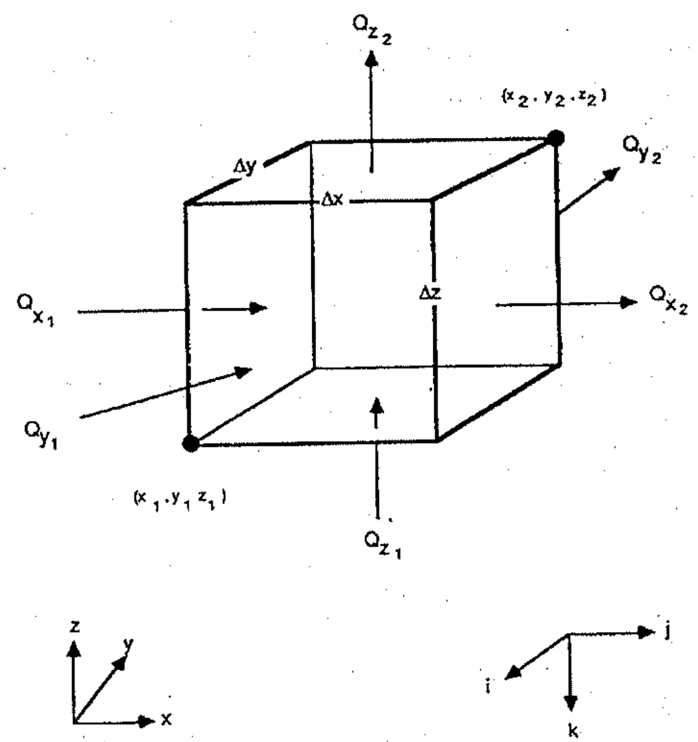

Figure 4-1 Finite Difference Cell
(Pollack, 1989)

Equation 4-9 gives a mass balance equation (Pollack, 1989) that can be written for the cell in Figure 4-1:

$$n\left\{\frac{(v_{x_2}-v_{x_1})}{\Delta x}+\frac{(v_{y_2}-v_{y_1})}{\Delta y}+\frac{(v_{z_2}-v_{z_1})}{\Delta z}\right\}=\frac{Q}{\Delta x\Delta y\Delta z} \tag{4-9}$$

where x_1, x_2, y_1, y_2, z_1, and z_2 are the cell faces perpendicular to the respective direction (e.g., the x_1 face is perpendicular to the x-direction); and Δx, Δy, and Δz are the dimensions of the cell. The left side of equation 4-9 is the net volume rate of outflow per unit volume. The average linear velocity components inward (v_{x1}, v_{y1}, v_{z1}) and outward (v_{x2}, v_{y2}, v_{z2}) are found by dividing the volume flow rate inward in the x-direction (Q_{x1}) by the cross-sectional area of the face and the porosity, as demonstrated for the x_1 face in the following equation:

$$v_{z_1}=\frac{Q_{x_1}}{n\Delta y\Delta z} \tag{4-10}$$

Darcy's law is substituted for each flow term in equation 4-9, the hydraulic heads are simulataneously solved for the node centered in each cell, and the intercell flow rates are thus determined.

Visual MODFLOW uses a built-in data interpolation, gridding, and contouring component to import and interpolate field data. Interpolation methods supported by Visual MODFLOW include Inverse Distance Squared method, the Natural Neighborhood method, and Kriging (Waterloo, 2003). The Inverse Distance Squared interpolation method, where a weighting factor is applied to data depending on its distance from the grid cell that is inversely proportional to the distance squared, was used for this model. Several solvers are available with Visual MODLOW to solve the numerical flow equations, including the Slice-Successive Overrelaxation Package (SOR), the Strongly Implicit Procedure Package (SIP), and the WHS solver. The WHS solver was chosen for this model, which uses a Bi-Conjugate Gradient Stabilized (Bi-CGSTAB) acceleration routine with Stone incomplete decomposition for preconditioning of the flow partial differential equations (Waterloo, 2003).

A particle tracking post-processing package was developed to compute three-dimensional streamlines based on output from steady-state simulations obtained with a finite difference groundwater flow model like MODFLOW (Pollack, 1989). MODPATH calculates the streamlines and MODPATH-PLOT presents the streamlines graphically, both of which are FORTRAN programs. Since MODFLOW uses a block-centered approach that assumes properties within a cell are homogeneous, MODPATH uses a semi-analytical particle tracking scheme. This tracking scheme assumes each directional velocity component varies linearly within a grid cell in its own coordinate direction, allowing streamlines to be traced and travel times between points along a streamline to be computed (Pollack, 1989; Waterloo, 2003). The position of the particle for each coordinate direction was derived by Pollack (1989) for each coordinate direction. The derivation is briefly summarized here for the x-direction, and it is analogous for the y and z-directions. The direct integration of the rate of change in a particle's x-component of velocity (vx_p)

$$\left(\frac{dv_x}{dt}\right)_p = \left(\frac{dv_x}{dx}\right)vx_p \tag{4-11}$$

where x_p is the x-position of the particle, and the relation

$$\frac{dv_x}{dx} = A_x \tag{4-12}$$

where A_x is the area of the x-cell face, eventually results in this expression for the exit x-position of a particle:

$$x_p(t_2) = x_1 + (\frac{1}{A_x})\{v_{x_p}(t_1)\exp(A_x \Delta t) - v_{x_1}\} \qquad (4\text{-}13)$$

where t_1 is the time when the particle enters the cell, t_2 is the time the particle leaves the cell, Δt is the time the particle remains in the cell, and x_1 is the initial x-position of the cell. These relationships are illustrated on Figure 4-2 (Pollack, 1989).

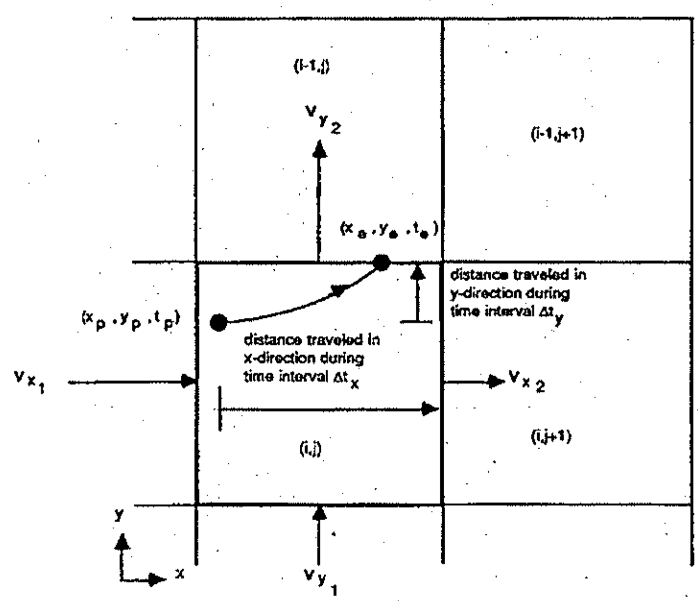

Figure 4-2 Schematic of the Particle Exit Point and Travel Time in a Two-Dimensional Cell

(Pollack, 1989)

4.2 CONCEPTUAL MODEL

In reality, the subject site aquifer is a complex, heterogeneous system that can never be fully characterized, even with the wealth of data available for the subject site. Certain assumptions were made about the site aquifer to build a model that would be simple to use but would represent the important properties of the aquifer.

Review of monthly hydraulic head values over the past several years at the site revealed that head values do not fluctuate significantly over the course of a year. Steady-state flow conditions have been assumed at the subject site for past studies (Ostendorf *et al.*, 2004). Therefore, steady-state flow conditions were established to simplify the model.

The conceptual model assumed a homogenous isotropic aquifer, where the permeability was constant across the entire area and depth of the domain, in all directions. Previous modeling of the site aquifer (including Sullivan, 2001; Fauteux, 2002; Ward, 2003) also established a homogeneous, unconfined aquifer when modeling the site. The aquifer was considered to be unconfined with groundwater recharge resulting from ambient precipitation, infiltration from highway runoff, and infiltration from highway runoff effectively routed to the infiltration basin. The model steady ambient recharge rate was found by applying results obtained from measuring tritiugenic helium and tritium concentrations in groundwater collected in the infiltration basin area (Meyer, 1999), and it is indicated in Section 2.5.3.

Figure 4-3 (Pollack, 1989) presents a conceptualization of the model domain, which can be considered a control volume that is part of the larger regional aquifer. The top face of the model control volume is the ground surface. Recharge flux is applied to top unconfined layer to be infiltrated to the groundwater table.

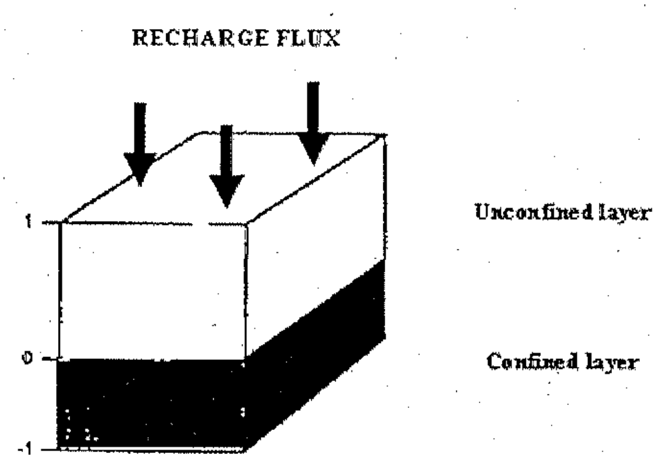

Figure 4-3 Model Domain Conceptualization
(Pollack, 1989)

Flow into the infiltration basin is caused by runoff routed from approximately 28,260 m^2 of pavement from SR25 eastbound and westbound lanes and a portion of the median area. Table 4-1 lists the drainage scheme for the paved highway areas designated in Figure 4-4.

Pavement areas on this section of SR25 were sloped to the south so that catch basins located in the adjacent southern shoulders or median areas collect the runoff. Paved areas E, F, B, C, and a small part of 4 (a median area) were designed so that their runoff was routed to the West Weir in the infiltration basin. An additional 9373 m^2 of pavement not included in the model domain was also designed to route runoff to the West Weir. This drainage system (I) was demonstrated to be 68% efficient (Ostendorf *et al.*, 2005a).

Table 4-1 Highway Drainage Scheme

Scheme	Description	Drainage Eff (%)	Designation	Type	Station start	Station end	Pavement length m	Pavement eff width* m	Captured Area m^2
I	Drains to basins south then to W.Weir	68	E	WB lane	556.5	559	75	15.24	1143
			F	WB lane	559	565	180	15.24	2743.2
			B	EB lane	559	565	180	15.24	2743.2
			C	EB lane	565	575	300	15.24	4572
			4	median	565	575	300	12.38	3714
II	Drains to basins in median then to W. Wei	21	G	WB lane	565	575	300	15.24	4572
III	Drains to E. Weir	0	D	WB lane	555	556.5	45	15.24	685.8
			A	EB lane	556.5	559	75	15.24	1143
			H	EB lane	555	556.5	45	15.24	685.8
I†	Not in model domain but drains to W.Wei	68	w of G	WB lane	578	587	270	15.24	4114.8
			w of C	EB lane	575	583.5	255	15.24	3886.2
			w of 4	median	575	578	90	15.24	1371.6
					Paved area received by West Weir =				28860

*effective paved road width = 3 x 3.66m travel lanes + 3.04 m breakdown lane + 1.22 m inner paved shoulder

†Pavement not included in model domain only to keep domain smaller.

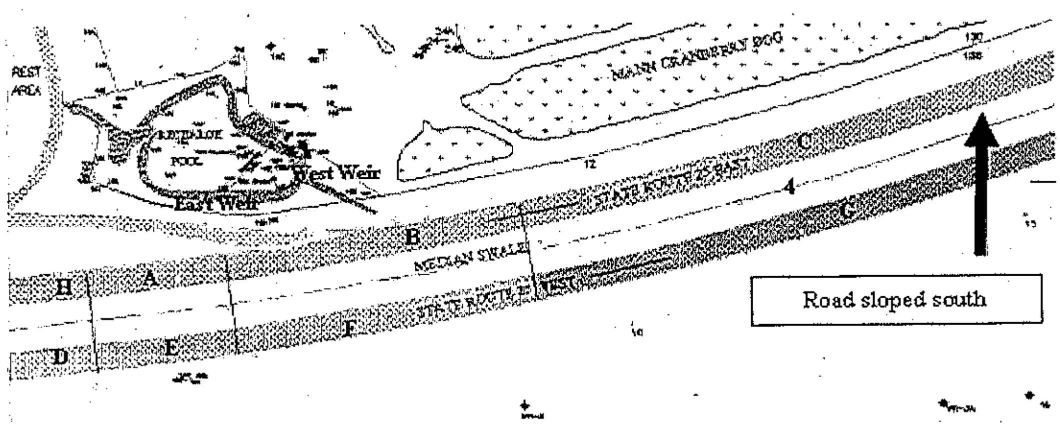

Figure 4-4 Highway Drainage Scheme

The paved area captured (A_P) was defined as:

$$A_P = L_R \times W_e \tag{4-14}$$

where L_R is the roadway length and W_e is the effective width of the paved area. Drainage system II was designed to route runoff from area G (part of the westbound lane) to catch basins located in median area 4. Drainage system II was indicated to be 21% efficient (Ostendorf *et al.*, 2005a). In drainage scheme III, runoff from paved areas A, D, and H was designed to ultimately discharge to the East Weir in the infiltration basin. However, a review of flow data collected at the East Weir shows System III to be virtually inefficient.

In addition, all groundwater was considered mobile within the soil pores, so that the total and effective porosities were equivalent (Fitts, 2002). Since the water table is shallow and the soil grains are relatively coarse in the site aquifer, the specific yield (S_y) was approximated to be the porosity value and was applied across the entire thickness of the aquifer (Fitts, 2002). For further simplification, the boundary between the bedrock surface was considered to be at a constant elevation.

Advective transport of the deicing materials in groundwater was considered to be the dominant mode of contaminant travel. Dispersion and diffusion were thought to be much less significant than advection, and were ignored in this model with the utilization of particle tracking to simulate deicer contamination. According to Pollack (1989), advection models can not be used to find solute concentrations in groundwater because they ignore mixing by dispersion, but they can be a valuable tool for comparing relative magnitudes of solute. The deicing contaminant was assumed to act conservatively based on modeling results demonstrated by Meyer (1999) for the site, so that adsorption and degradation were not considered.

4.3 HYDRAULIC MODEL DEVELOPMENT

A digital map image of the research site was imported into the MODFLOW model. The model domain included the infiltration basin and monitoring wells located upgradient and downgradient of the basin, covering an approximate area 900 m long in the x-direction by 700 m long in the y-direction. The digital map was placed into the MODFLOW model at an angle of 68° to align the flow of groundwater with the x-direction; therefore, excluding areas not chosen to be part of the model, the approximate domain area was 468,000 m^2. The domain was discretized into a rectangular finite-difference grid with 43 rows in the x-direction and 67 columns in the y-direction. Most grid cells were 20 m by 20 m, but the grid was refined to 10 m by 20 m cells in the highway area and 5 m by 5 m in the infiltration basin area. Cell sizes were varied in this manner to provide better resolution in the regions of interest in the model, the highway and basin areas. Please refer to the plan view of the model domain shown in Figure 4-5.

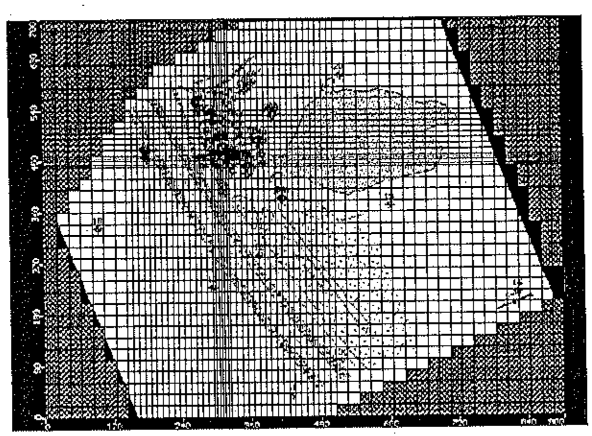

Figure 4-5 Plan View of Model Domain

The maximum aquifer thickness was 40 m, divided into four layers spaced at 10-m intervals. Figure 4-6 shows a cross-section of the vertical layering in the model. Ground surface elevations were imported into MODFLOW, so that the uppermost layer 1 varied in thickness due to the topography, while layers 2 through 4 were constant in thickness (10 m each). Ground surface elevations are in Appendix E. As a result, the total thickness of the aquifer ranged from 32 to 37 m thick. Layer 1 was considered to be unconfined, while the other layers were confined.

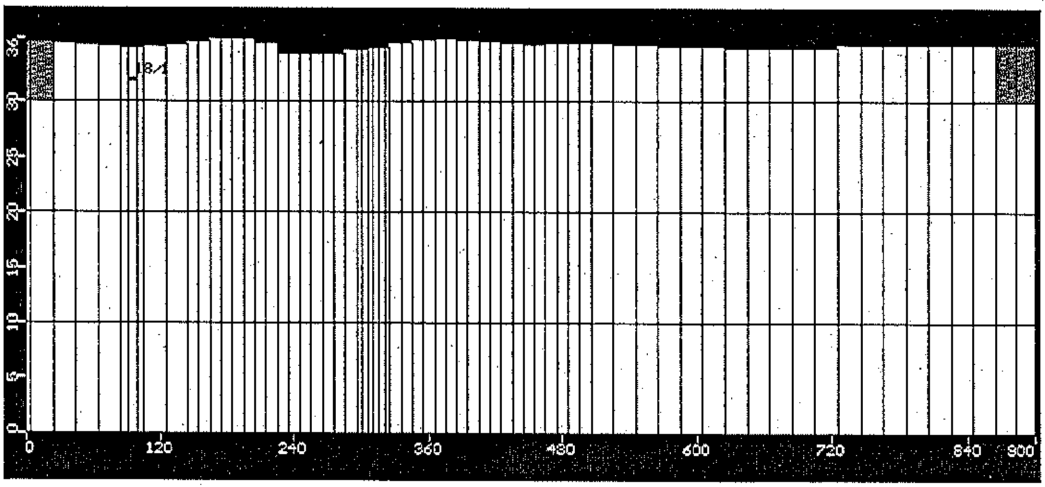

Figure 4-6 Cross-Sectional View of Model Domain

Subsurface investigations at the research site indicated that bedrock can be found at an elevation of 24.9 m below msl (Meyer, 1999). This model assumed the bedrock interface elevation to be constant across the entire domain, and it is set as the datum line (z = 0).

4.3.1 Initial Hydraulic Parameters

Table 4-2 lists the initial parameter values used to calibrate the hydraulic model.

Table 4-2 Initial Model Parameters

Parameter		Value	
Specific storage	S_s	zero	
Specific yield	S_y	0.3	
Effective porosity	n	0.3	
Bedrock elevation	z_B	- 24.9	m msl
Aquifer thickness	ζ	32 - 37	m
Layer 1		2 - 7	m
Layer 2		10	m
Layer 3		10	m
Layer 4		10	m
Kinematic viscosity	ν	1.3×10^{-6}	m^2/s
Permeability	k	1×10^{-10}	m^2

For this steady-state groundwater model, the specific storage term S_s was assumed to be zero. The porosity n was assumed to be 0.3 for the model. Hansen and Lapham (1992) used a porosity of 0.28 when modeling the Plymouth-Carver aquifer. According to Ostendorf *et al.* (2004), the porosity at this specific site within the regional aquifer can range from 0.25 to 0.35; Meyer (1999) used a value of 0.3 when numerically modeling the site aquifer. Since the water table is shallow and the soil grains are relatively coarse at the research site, the specific yield value S_y was approximated to be the porosity value of 0.3. The permeability k was assumed to be a constant value, and the calibration of the permeability is discussed in Section 5.1.3.

4.3.2 Boundary Conditions

The bottom of the aquifer was considered to be the interface between bedrock and the aquifer, and was treated as a no-flow or impermeable boundary.

$$\frac{\partial h}{\partial x} = 0 \qquad \text{(at } z_B\text{)} \qquad (4\text{-}15)$$

Water should flow in and out of the vertical sides or plane edges of the cube on Figure 4-3 in the direction of groundwater flow because these sides are in contact with the regional aquifer. Since MODFLOW assumes no-flow boundaries at each vertical side of the model domain, it was necessary to calibrate the outer boundary conditions by comparing calculated hydraulic heads to observed measurements. Hydraulic head values were generated by importing measured field data from August 2003 through July 2004 at monitoring well locations located within the domain. The hydraulic head measurements used to calibrate this model are located in Appendix F.

Figure 4-7 includes hydraulic head contours (in m msl) based on an average of the August 2003 – July 2004 data[4]. Calibration of the specified constant hydraulic head boundary conditions was based on these contours, and is discussed in Section 5.1.1. Hydraulic head values were assigned to the model in terms of the bedrock elevation (24.9 m below msl) acting as the datum line. In other words, a hydraulic head value of 32 m in the model actually represents a head of 7.1 m above msl. Specified head boundaries are indicated on Figure 4-8.

[4] If irrigation pumping was occurring at a well located just outside the basin area at the Mann Cranberry Bog while hydraulic head measurements were taken, these data were not used in the average.

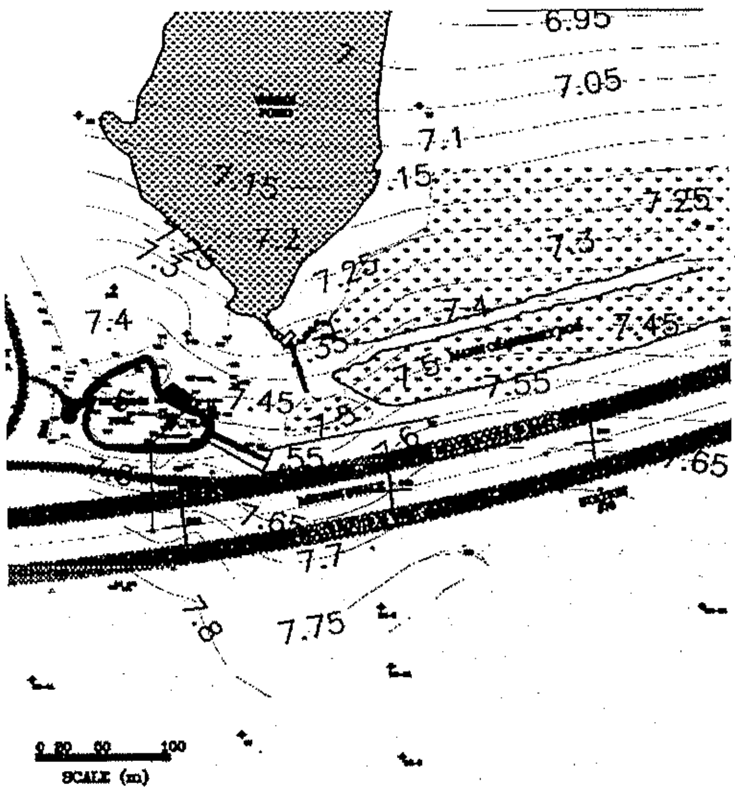

Figure 4-7 Average Hydraulic Head Contours (in m msl) based on August 2003 – July 2004 data

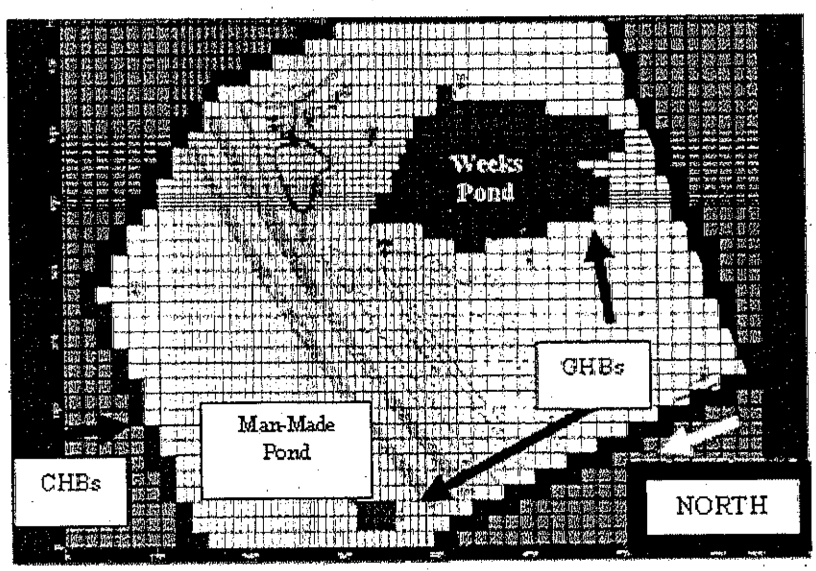

Figure 4-8 Specified Boundary Conditions

The Constant Head Boundary (CHB) condition in Visual MODFLOW sets the head value in a selected grid cell independent of the surrounding cells, acting as an infinite source or sink of water (Waterloo, 2003). Initial CHBs were applied to the edges of the model domain as follows to represent the contours observed in Figure 4-4: a CHB of 32.8 m (7.9 m above msl) was applied along the northern edge of the domain; a CHB of 32.75 m (7.85 m above msl) was applied at the northeastern corner; and a CHB of 31.7 m (6.8 m above msl) was applied at the southwestern corner.

General Head Boundaries (GHB) were used to simulate two surficial water bodies (Weeks Pond and the Man-Made Pond) within the model domain. The CHB condition was not used to simulate the water bodies because it resulted in an unrealistic representation of the streamlines emanating from the infiltration basin (i.e., it curved the streamlines up toward Weeks Pond because the CHB condition provided an infinite source of water to the system). Instead, the GHB condition provided flow into or out of a cell that was proportional to the difference between the head in the cell and the reference head assigned to the external source, and did not act as infinite water source (Waterloo, 2003). The GHB condition requires that boundary head and conductance values be added as input. The boundary head for each water body was specified as the average of hydraulic heads measured from August 2003 through July 2004. For Weeks Pond, the boundary head was 32.2 m, and for the Man-Made Pond, the boundary head was 32.7 m. Conductance (γ) is calculated by MODFLOW as

$$\gamma = \frac{(LxW)x\varphi}{D} \qquad (4\text{-}16)$$

where L is the length of a reach through a cell, W is the width of the cell, φ is the vertical hydraulic conductivity of the aquifer material separating the external source/sink from the model grid, and D is the distance from an external source or sink (e.g., a water body just outside the domain) to the model grid. However, a calibrated value can also be used to set the conductance. Since the water bodies of interest exist within the domain, the conductance was calibrated to a value of 1 m^2. Figure 4-9 (Waterloo, 2003) illustrates a schematic of the GHB condition.

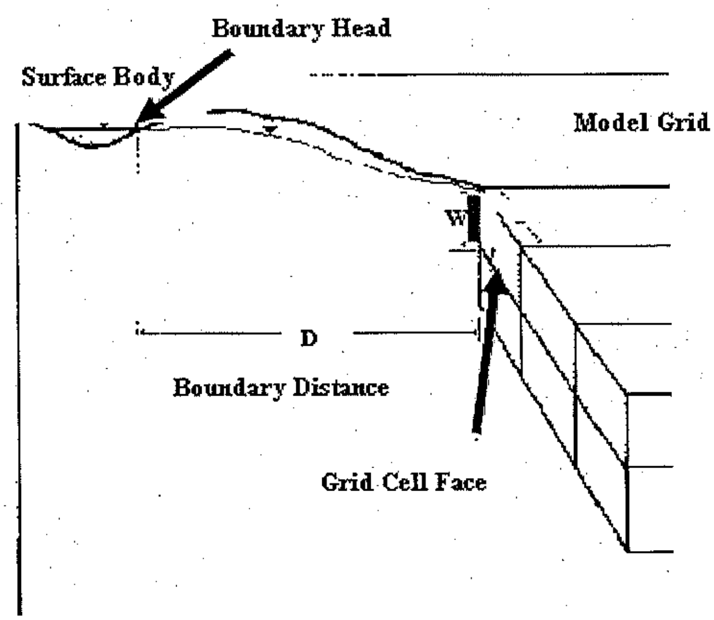

Figure 4-9 General Head Boundary Schematic
(Waterloo, 2003)

Table 4-3 lists the initial boundary conditions used to calibrate the hydraulic model. The final calibrated values of the CHBs are presented in Section 5.1.1.

Table 4-3 Initial Specified Boundary Conditions

Parameter	Model Value	Actual Value
Constant Head Boundaries		
Northern Limit	32.8 m	7.9 m
Northeastern Corner	32.75 m	7.9 m
Southwestern Corner	31.7 m	6.8 m
General Head Boundaries		
Weeks Pond	32.2 m	7.3 m
Man-Made Pond	32.7 m	7.8 m

4.3.3 Recharge Zones

Recharge flux was assigned to the top face of all cells. Recharge zones were used to characterize areas with different recharge rates within the model domain, as shown in Table 4-4. Please note that the recharge zone areas chosen in the model are not the same size as the actual recharge areas. The model recharge rates on these areas were based on the model recharge zone area (A_Z) so as to better represent the actual recharge on these areas. The model recharge parameter transformation process was as follows:

According to data collected from a rain gauge station in the basin and from the nearby UMass Cranberry Station (see Chapter 3), the subject site received 35 inches (897 mm) of precipitation between August 2003 through July 2004. This period of record was a little drier than usual; an annual average precipitation of 1.5 m/yr (approximately 4.6×10^{-8} m/s) has been noted for the site (Meyer, 1999). Ostendorf *et al.* (2004) found a steady-state recharge rate ε_s of 2.18×10^{-8} m/s for the site.

Table 4-4 Recharge Zones

Recharge Zones	No.	Location Description	Model area	Recharge Rates
Ambient	1	areas excluding 2 - 16	401950 m^2	422 mm/yr
Highway Pavement	2	eastbound, westbound lanes	23400 m^2	zero
Effective Basin	3	west of fence, east of West Weir	250 m^2	62902 mm/yr
Median	4	between stations 565 - 575	7800 m^2	617 mm/yr
North Shoulder	5	between stations 559 - 565	2200 m^2	422 mm/yr
Rest Area Pavement	6	exit ramp, parking lot	10400 m^2	zero
South Shoulder	7	between stations 559 - 565	1200 m^2	730 mm/yr
Median	8	between stations 559 - 565	4600 m^2	502 mm/yr
North Shoulder	9	between stations 565 - 575	4200 m^2	422 mm/yr
South Shoulder	10	between stations 565 - 575	4400 m^2	562 mm/yr
North Shoulder	11	between stations 555 - 556.5	600 m^2	422 mm/yr
South Shoulder	12	between stations 556.5 - 559	1000 m^2	903 mm/yr
Median	13	between stations 556.5 - 559	2400 m^2	486 mm/yr
Median	14	between stations 555 - 556.5	1800 m^2	582 mm/yr
North Shoulder	15	between stations 556.5 - 559	1200 m^2	422 mm/yr
South Shoulder	16	between stations 555 - 556.5	600 m^2	903 mm/yr
		SUM	468000 m^2	

Using the typical annual average precipitation value of 4.6×10^{-8} m/s and the steady recharge rate found, an R of 47% resulted. ε_A was based on R:

$$\varepsilon_A = RP_A \tag{4-17}$$

where P_A was the annualized precipitation rate. The basin recharge rate ε_B was the infiltration rate of highway runoff successfully discharged to the basin area.

Unlike ambient recharge, all basin discharge was considered to be infiltrated to the water table. ε_B was determined by:

$$\varepsilon_B = \varepsilon_A + \sum (E \times P_A \times \frac{A_P}{A_Z}) \qquad (4\text{-}18)$$

where E is the efficiency of the drainage system, and A_P is the paved area captured. Highway runoff not effectively captured by the drainage system was assumed to infiltrate the southern adjacent areas, at the ambient R of 47%. The runoff recharge rate ε_R was

$$\varepsilon_R = \varepsilon_A + \sum \{(1-E) \times P_A \times \frac{A_P}{A_Z}\} \qquad (4\text{-}19)$$

The ambient recharge area (Zone 1) comprised the entire domain excluding paved zero recharge areas (Zones 2 and 6), the effective infiltration basin recharge area (Zone 3), runoff recharge areas (Zones 4, 7, 8, 10, 12, 13, 14, and 16), and northern shoulder areas (Zones 5, 9, 11, and 15). The northern shoulder areas were considered to receive only ambient recharge and no highway runoff. The paved zero recharge zones were represented by Zones 2 and 6. Zone 2 included any paved surfaces such as the parking lot of the rest area located near the infiltration basin, and the east and westbound lanes of the Route 25. Zone 6 comprised the rest area off-ramp from the highway, and the portion of the parking lot area included within the model domain. Runoff recharge zones 4, 8, 13, and 14 were grassy median areas (since the paved areas in the medians were small in relation to the grassy areas, the entire medians were treated as pervious surfaces); and runoff zones 7, 10, 12, and 16 comprised the grassy southern shoulder area.

Zone 3 was designated as the effective infiltration basin area. The effective basin area initially selected was a square region 20 m by 20 m with an area of 400 m^2, but the final calibrated size of the effective infiltration basin was 250 m^2. Past field observations have noted an E-shaped puddle during storm events (Ward, 2003). The method used to select the effective basin recharge area and recharge rate for Zone 3 is discussed in Section 5.1.2.

Figure 4-10 indicates the recharge zones used in the model, and Figure 4-10a details the effective basin recharge area. Figure 4-11 shows how the captured pavement areas in Table 4-1 were related to the recharge zones assigned in the model.

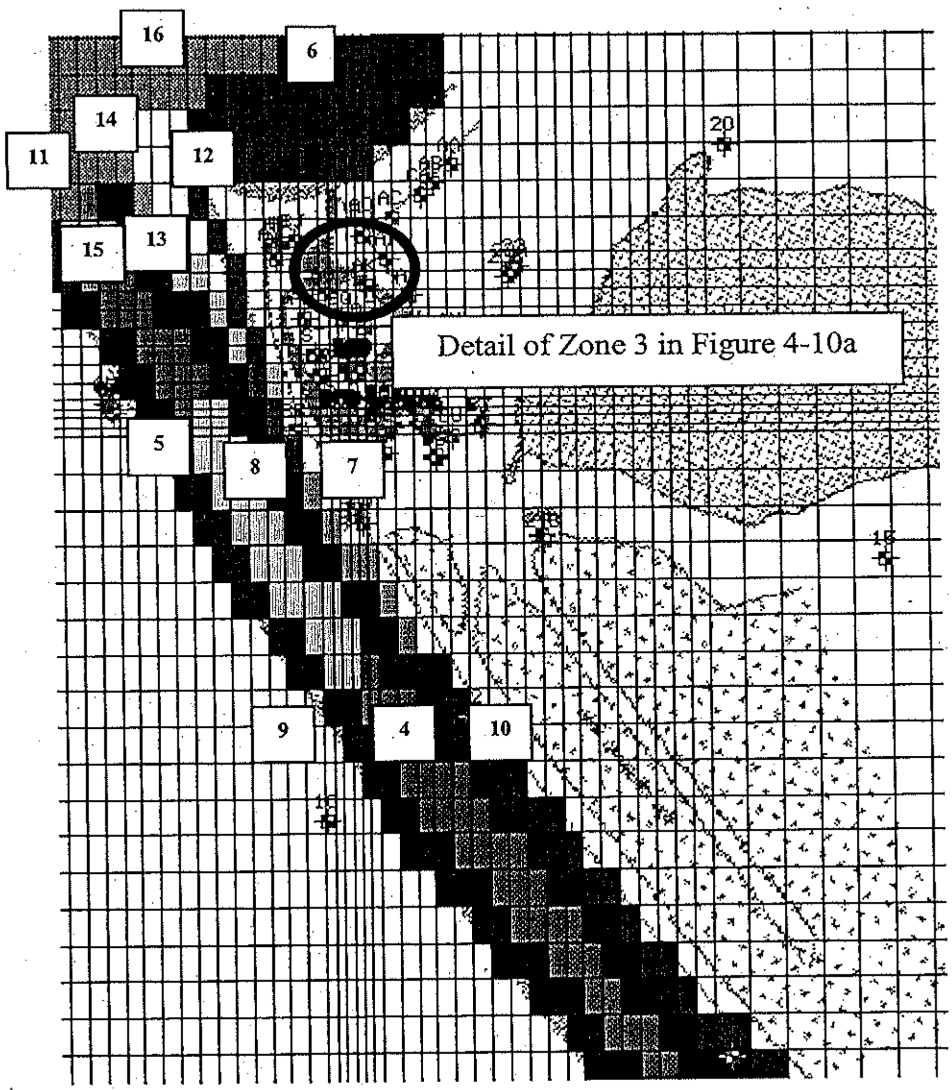

Figure 4-10 Recharge Zones

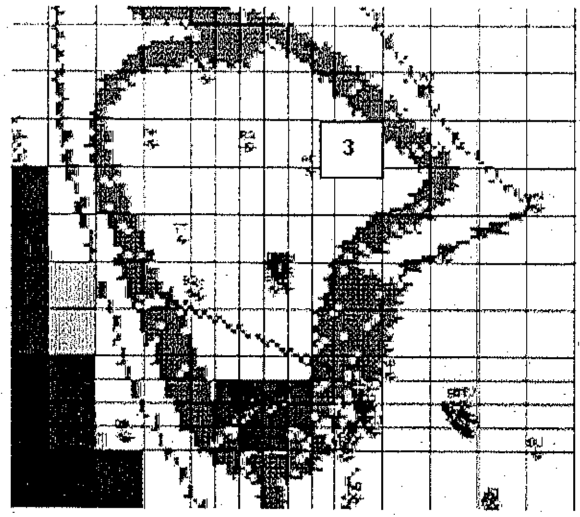

Figure 4-10a Basin Recharge Zone

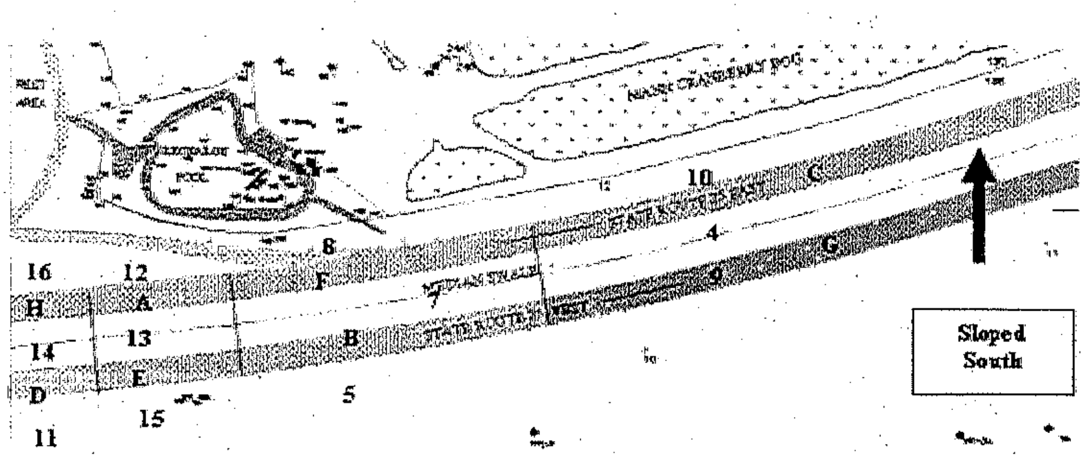

Figure 4-11 Captured Pavement Areas with Model Recharge Zones

4.4 CONTAMINANT MODEL DEVELOPMENT

Particles created by MODPATH were used to simulate deicer particles. This method also only considered advection, and ignored dispersion. Figure 4-12 shows a particle and the resulting streamline that traced the path the particle traveled in groundwater.

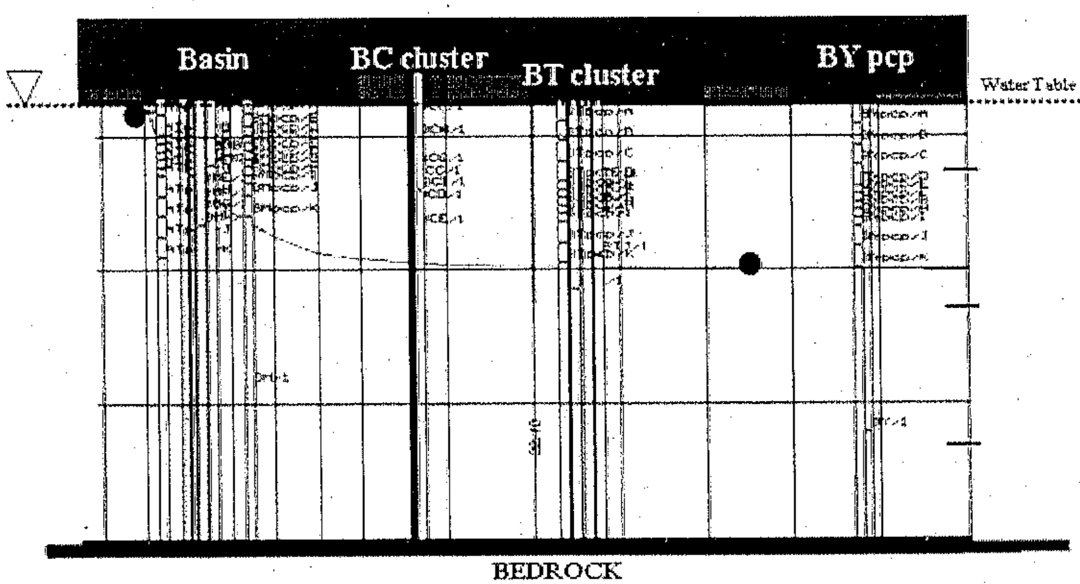

Figure 4-12 Streamline

A circle of particles was placed surrounding the effective infiltration area (Zone 3) and the particles were tracked forward by MODPATH to roughly characterize which wells were within the general path of the deicer plume. To determine the vertical extent of contamination, particles were assigned to the most upgradient edge of the effective infiltration area and released forward in time to simulate the vertical limiting streamline.

Particles were assigned to the midpoint of each observation well and tracked backward to determine which wells receive water from within the model domain. The origin locations of particles that entered the groundwater within the model domain were noted with their respective travel times.

5 RESULTS AND DISCUSSION

5.1 HYDRAULIC MODEL CALIBRATION

5.1.1 Hydraulic Head Boundary Condition Calibration

Boundary conditions along the edges of the model domain were calibrated by comparing the annual averages of observed hydraulic head measurements from August 2003 through July 2004 with heads predicted by the model. Initial head boundaries were chosen based on annually averaged heads observed in wells located at the edges of the model domain (Wells 11, 13C, 16, 18, 20). The predicted hydraulic head data was fit to the observed heads by varying these boundary conditions to minimize the error, in this case the Normalized Root Mean Squared (Norm RMS). Norm RMS was expressed as a percentage, and was defined as:

$$NormRMS = \frac{RMS}{(X_{obs})_{\max} - (X_{obs})_{\min}} \qquad (5\text{-}1a)$$

where X_{obs} is the observed hydraulic head, and RMS is:

$$RMS = \sqrt{\frac{1}{\delta}\sum_{i=1}^{n} R_i^2} \qquad (5\text{-}1b)$$

where δ was the number of data points, and the residual value R_i for each observation location is the difference between the calculated and observed hydraulic head.

$$R_i = X_{cal} - X_{obs} \qquad (5\text{-}1c)$$

Figure 5-1 plots the annually averaged observed hydraulic heads versus the heads predicted by the steady-state model. The hydraulic model was considered to be calibrated when the Norm RMS reached a value less than 5%, and the 95% confidence intervals were centered with the data points. Monitoring well ST showed the largest hydraulic head residual of 0.225 m. Otherwise, the calibrated hydraulic model yielded a

Norm RMS of 4.9%, indicating a good agreement between observed and predicted hydraulic head values.

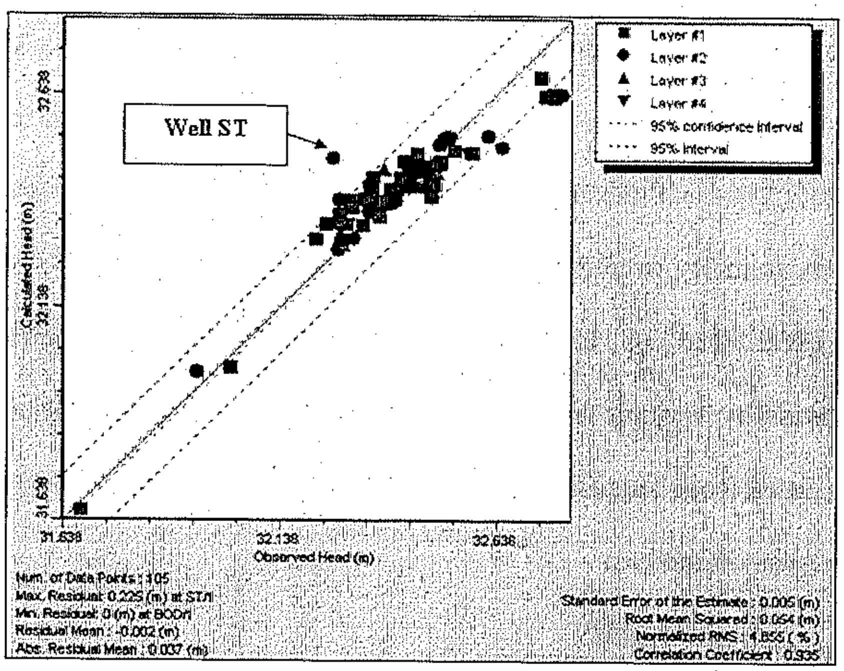

Figure 5-1 Observed vs. Predicted Hydraulic Heads

Figure 5-2 compares the frequency of residuals resulting from the hydraulic head calibration to a normal distribution curve. Fifty-two wells indicated hydraulic head residuals of up to ± 0.02 m, while the normal distribution curve predicted that about half of that number of wells should see residuals up to ± 0.02 m. The largest residual reported was approximately 0.23 m at one well (ST). Given the level of precision that can be achieved for measuring water levels in the field (0.01 m), the residuals reported for the calibration were fairly reasonable.

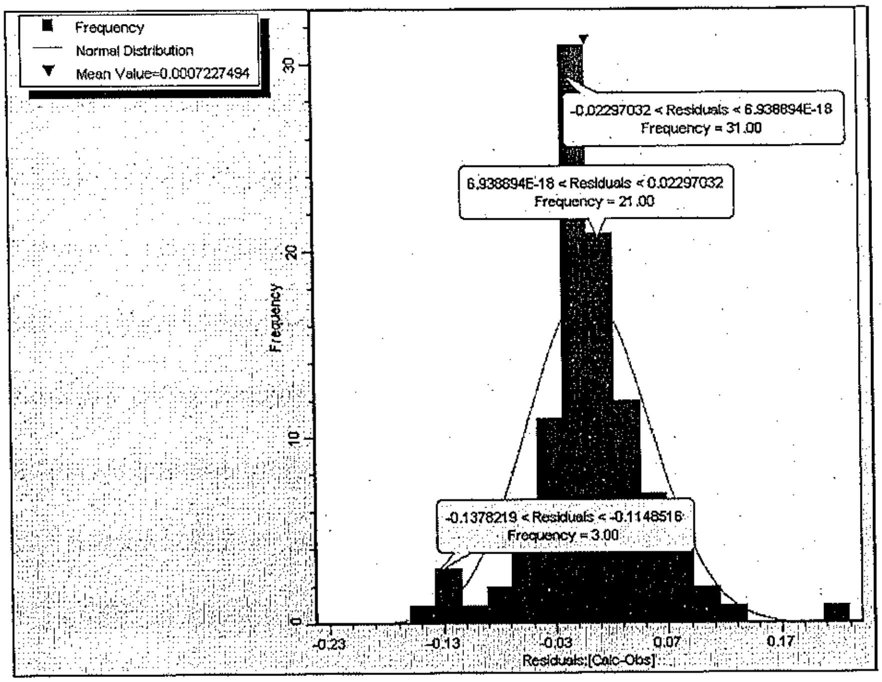

Figure 5-2 Hydraulic Head Calibration Residuals Histogram

Figure 5-3 represents the calibrated hydraulic head boundary conditions at the limits of the model domain.

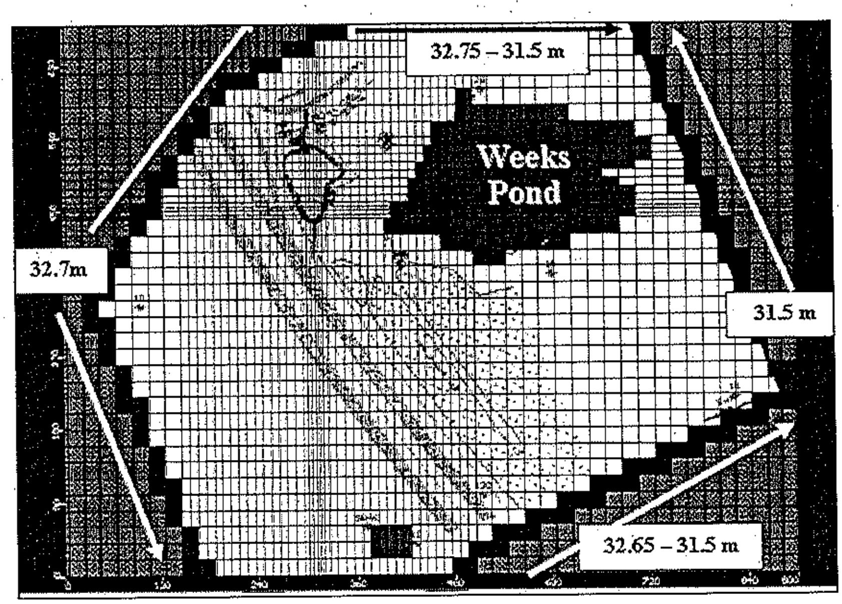

Figure 5-3 Hydraulic Head Boundary Conditions

5.1.2 Infiltration Basin Area and Rate Calibration

The effective area of the infiltration basin, or the puddle area resulting from stormwater discharging to the basin via the West Weir[5] that eventually infiltrates the groundwater table, constantly changes depending on several factors. These variables include the size of a storm, the volume of stormwater that is captured by the storm drains, and whether the ground is frozen. However, an average effective basin infiltration area was calibrated by comparing the limiting streamline to that demonstrated by past studies.

An effective infiltration basin area A_B of 250 m^2 was indicated by this calibration method. The area roughly follows the geometry of the basin directly in front of the West Weir. The infiltration area has a maximum width of 20 m north to south, and 15 m east to west. This area includes most of the area before the separation fence. The infiltration basin area is depicted on Figure 5-4.

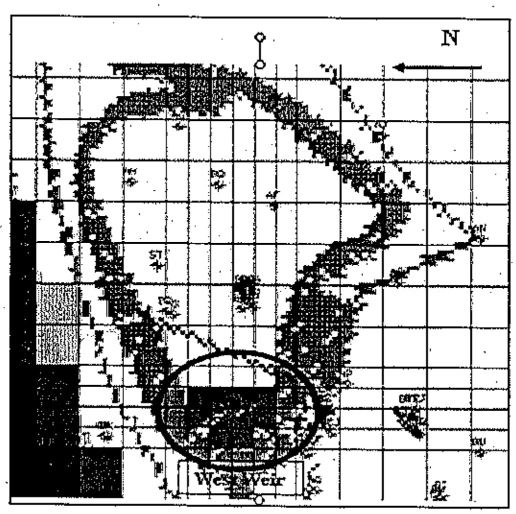

Figure 5-4 Effective Infiltration Basin Area

[5] Any stormwater discharge delivered by the East Weir to the infiltration basin was considered insignificant.

A_B was used to determine ε_B. The basin infiltration rate and the infiltration area were related as follows:

$$\varepsilon_B = \frac{EA_pP_A}{A_B} \tag{5-2}$$

It was assumed that the water entering the basin via the West Weir was completely infiltrated to the groundwater table. The annual average precipitation falling on the highway pavement discharges to the basin over a significantly smaller area, therefore resulting in a much higher infiltration rate than the ambient recharge rate.

Ostendorf *et al.* (2005a) concluded that the drainage system along the majority of the paved area captured (24,288 m^2) was 68% efficient in delivering runoff to the infiltration basin, while the remaining paved area (4,572 m^2) was 21% efficient in capturing runoff. This resulted in an ε_B of 1.99×10^{-6} m/s.

5.1.3 Permeability Calibration

To calibrate a single permeability k for the model, a range of values was chosen based on slug test data measured in 2003. A one-parameter Fibonacci search was performed for a range of k values, where the minimum value was the k found at the shallow well (BP) and the maximum value was twice the permeability indicated at the deep well (BO). The results of the Fibonacci search are shown on Figure 5-5. An optimum k of 1.5×10^{-10} m^2 was found for the steady-state hydraulic model. This result falls roughly in the middle of the range observed with the field slug testing.

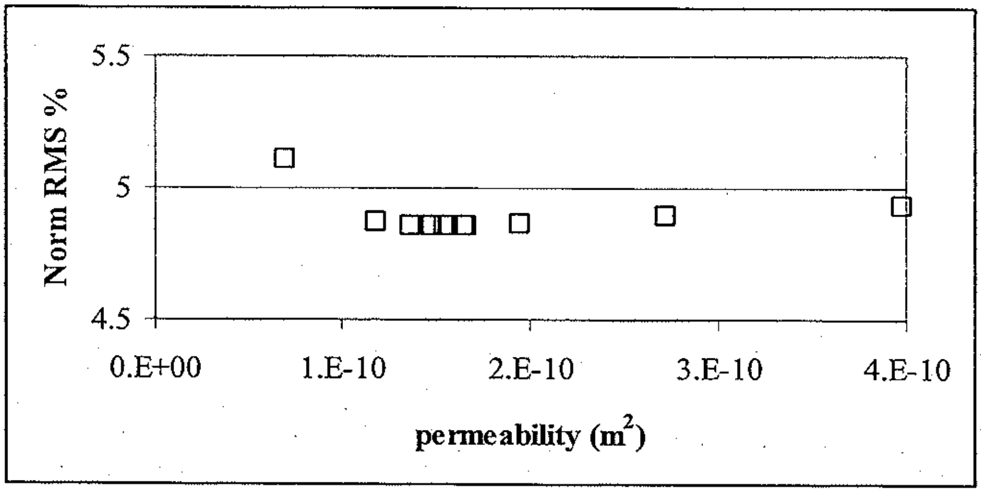

Figure 5-5 Calibration of Permeability

5.1.4 Hydraulic Model Parameters

Table 5-1 lists the final steady-state hydraulic model parameters. ε_A on the remaining unpaved areas in the model domain was 1.34 x 10^{-8} m/s, two orders of magnitude less than the ε_B. However, since approximately the same volume of water falling on A_P (approximately 30,000 m^2) must be infiltrated over an A_B (250 m^2) two orders of magnitude smaller, this recharge rate was reasonable.

Table 5-1 Steady-State Hydraulic Model Parameters

Parameter		Value	
Paved Highway Area Discharging to Basin	A_P	28,860	m^2
Effective porosity	n	0.3	
Bedrock elevation	z_B	- 24.9	m msl
Aquifer thickness	ζ	32 - 37	m
Kinematic viscosity	ν	1.3×10^{-6}	m^2/s
Annual average precipitation	P	0.90	m/yr
Ambient steady recharge	ε_A	1.34×10^{-8}	m/s
Effective basin area	A_B	250	m^2
Basin recharge	ε_B	1.99×10^{-6}	m/s
Flow over basin area	Q	5×10^{-4}	m^3/s
Permeability	k	1.5×10^{-10}	m^2
Limiting streamline elevation	z_L	- 4.8	m msl

5.2 STREAMLINE ANALYSIS

5.2.1 Forward Particle Tracking

5.2.1.1 Horizontal Extent of Deicer Plume

A circle of particles was assigned around the effective infiltration basin and modeled forward in time to predict how far the deicer will travel in groundwater. Figures 5-6a and 5-6b give a plan view showing the possible paths the deicer could travel.

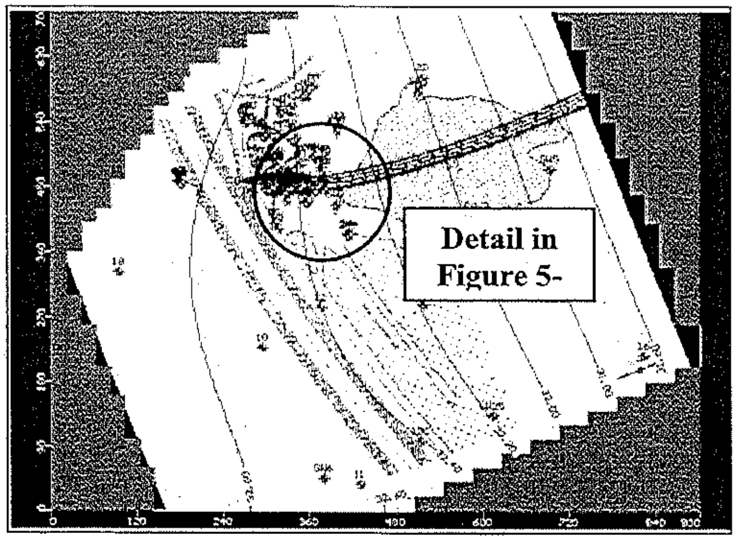

Figure 5-6a Plan View of Streamlines Predicted

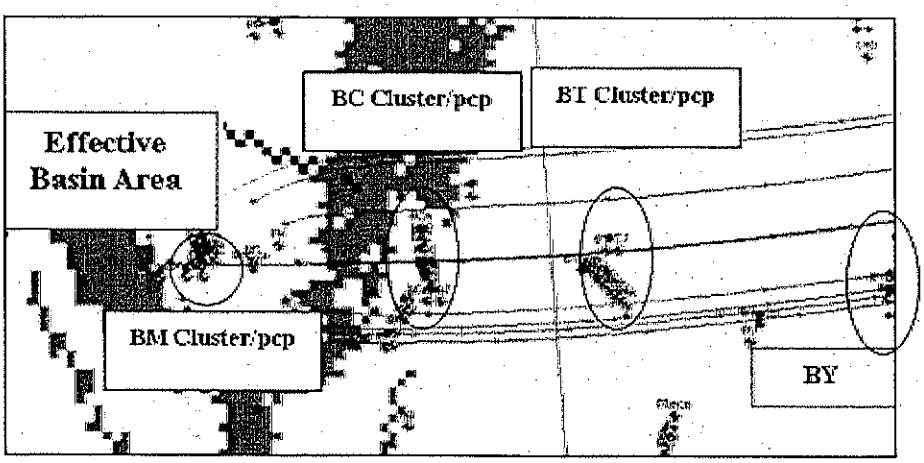

Figure 5-6b Detailed Plan View of Streamlines Predicted

Longitudinally, the deicer traveled to the downgradient limit of the model domain, and its extent could not be determined. Transversely, the model predicted that the deicer plume was approximately 20 m wide (east to west) traveling in a southerly direction, and was defined by the width (east to west) of the effective infiltration basin area. This result was expected, since groundwater generally flows in a southerly direction.

5.2.1.2 Vertical Extent of Deicer Plume

The vertical limit of the deicer contamination plume was determined by modeling the limiting streamline. Particles were assigned to the most upgradient edge of the effective infiltration basin, and modeled forward in time to determine the floor of deicer contamination.

Figure 5-7 illustrates the limiting streamline path along the centerline of the contamination plume.

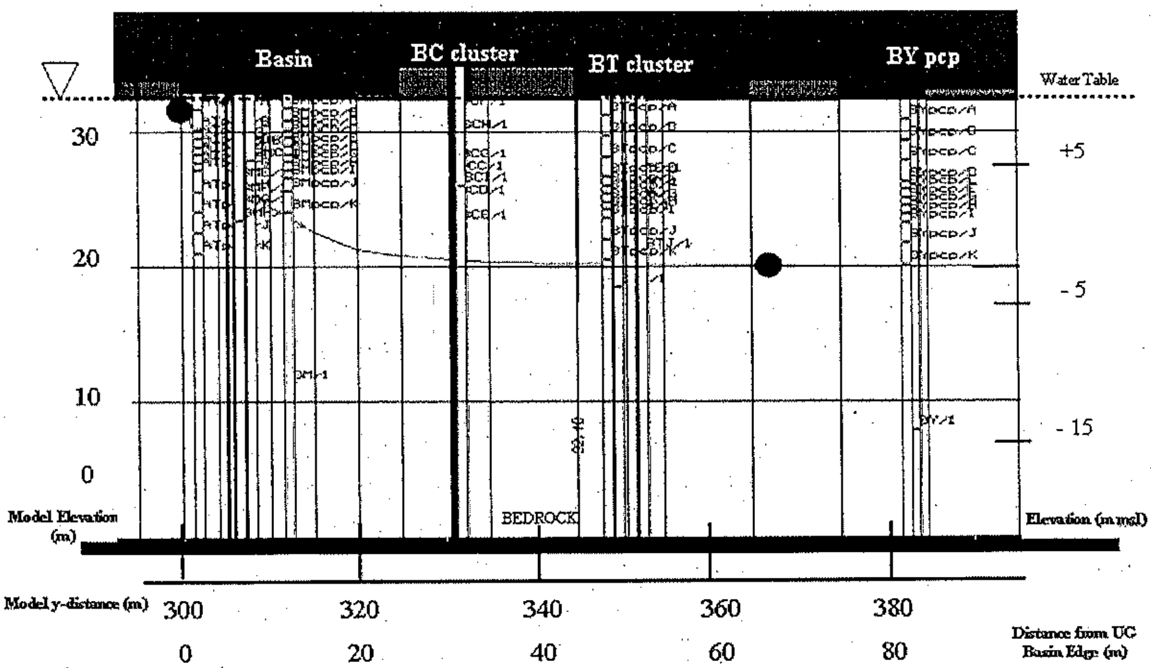

Figure 5-7 Limiting Streamline

Table 5-2 lists the elevations of the limiting streamline at three locations along the centerline of the contaminant plume: well clusters BM, BC, and BT.

Table 5-2 Limiting Streamline Elevation

Cluster / pcp	Distance from Upgradient Basin Edge (m)	Elevation (m msl)	Depth Below Water Table (m)
BM	6	1.4	6.2
BC	30	-4.3	11.8
BT	49	-4.8	12.3

Well cluster BM is approximately 6 m away from the upgradient edge of the infiltration basin, and is located within the basin area in front of the West Weir. Well cluster BC is located just outside the infiltration basin, approximately 30 m away from the upgradient edge of the basin. Well cluster BT is approximately 49 m away from the upgradient basin edge. The bottom of the plume pushed down as the plume migrates away from the infiltration basin, but it appeared to plateau around the BC cluster. The maximum limiting streamline depth found was approximately 4.8 m below msl. Fauteux (2002) found a maximum limiting streamline depth of 4 m below msl.

5.2.2 Reverse Particle Tracking

Once the hydraulic model was calibrated and the contamination plume was roughly defined, a particle was placed at the midpoint of each observation well screen, and modeled backward. This reverse particle tracking analysis was performed to determine where the water observed in each monitoring well originates at the water table, and the travel time of a typical water molecule. If that water was contaminated with deicer, the travel time of a water molecule was assumed to approximate the travel time of deicer.

If the particle modeled did reach the groundwater table within the domain, its source location and travel time were recorded. The travel times of particles entering the groundwater table within the model domain are listed in Table 5-3 for sampling well observations, and in Table 5-4 for permanent conductivity point (PCP) observations.

Table 5-3 Sampling Wells Receiving Water from the Infiltration Basin Area

Well	Travel time days	Sampling depth m msl	Well	Travel time days	Sampling depth m msl
AO	50	8.19	BMb	9	3.90
AP	30	8.04	BMc	11	2.96
AT	2	7.34	BMd	10	2.14
BCa	20	5.97	BMe	17	1.47
BCb	20	3.56	BN	10	1.78
BCc	20	1.99	BTa	65	5.40
BCd	40	0.17	BTb	65	4.44
BCe	40	-1.63	BTc	65	3.57
BCf	15	6.81	BTd	65	2.75
BCg	25	2.93	BTe	65	1.75
BCh	17	5.04	BTf	68	0.73
BCi	30	1.09	BTg	70	-0.10
BCj	42	-0.24	BTh	70	-0.96
BD	20	5.60	BTj	90	-3.73
BE	35	-0.52	BTk	50	7.27
BMa	7	4.76	BZ	120	6.67

*Note: Travel times based on a porosity of 0.3.

Table 5-4 Permanent Conductivity Points Locations Receiving Water from the Infiltration Basin Area

Well	Travel time days	Sampling depth m msl
ATpcp	3	6.83
	5	5.30
	6	4.69
BCpcp	25	7.12
	25	5.60
	30	4.08
	40	2.55
	40	1.03
	40	0.42
	40	-0.19
	50	-0.80
	50	-1.41
	50	-2.02
BMpcp	1	6.90
	3	5.99
	5	5.38
	6	4.77
	8	4.16
	9	3.55
	11	2.94
	13	2.33
	15	1.72
	18	0.81
	25	-0.72

Well	Travel time days	Sampling depth m msl
BTpcp	50	6.51
	50	4.99
	60	3.47
	70	1.94
	70	1.33
	70	0.72
	70	0.11
	70	-0.50
	70	-1.11
	75	-2.63
	80	-4.15
BUpcp	110	6.04
	110	4.51
	110	2.99
	110	1.47
	110	0.86
	110	0.25
	110	-0.36
	110	-0.97
	120	-1.58
BYpcp	120	5.83
	120	4.31
	120	2.79
	130	1.26
	130	0.65
	130	0.04
	130	-0.57
	130	-1.18
	140	-1.79
	150	-3.31

*Note: Travel times based on a porosity of 0.3.

The data show that particles originating in the infiltration basin area reached the BM cluster within 1 to 4 days. Particles arrive at the BC cluster within 15 to 50 days, at the BT cluster within 50 to 80 days, and at the BY pcp location within 4 to 5 months.

Table 5-5 provides the travel times of particles that were not hindcasted to enter the water table from the infiltration basin area.

Table 5-5 Observation Locations Receiving Water from Other Source Areas in the Model Domain

Well	Travel time days	Origin Location	Sampling depth m msl
AG	130	south shoulder of EB lane	7.34
AH	90		7.38
AF	120		7.31
AN	210		8.01
AS	80		7.43
AC	190	shoulder area N of ramp for rest area	8.24
AD	150		8.10
AI	200		8.14
BIpcp	420	by back fence area, b/tw wells BK/BS	5.96
AJ	11	crest of basin, comes down slope	8.04
CB	240	N of WB lane, near 4 UG wells across rd	8.63
AQ	330		8.17
BG	30		7.61
AA	160	rest area	8.38
CA	160		6.14
AB	35	west of rest area, slope	8.03

*Note: Travel times based on a porosity of 0.3.

The date that a specific conductivity or ion concentration was hindcasted to occur in the groundwater was found by subtracting the travel time from the observation date when the well was measured or sampled. Calculations of the "origination date" for each specific conductivity or ion concentration observed are included in Appendix G.

If the particle modeled hit the edge of the model domain before reaching the groundwater table, it was assumed that the particle originated in the subsurface outside of the domain. Water not originating in the domain was demonstrated to hit either the eastern or northeastern domain boundary. This result was expected, since these are the most upgradient locations in the model. Monitoring wells predicted to receive water from a source outside of the model domain are listed in Table 5-6.

Table 5-6 Wells Receiving Water from Outside the Model Domain

Observation	Hit model boundary		Sampling depth	Observation	Hit model boundary		Sampling depth
Well	E BC	NE BC	m msl	Well	E BC	NE BC	m msl
BF		X	-6.49	BTi		X	-6.34
BH		X	-12.96	BU		X	-0.02
BI		X	0.75	BUpcp		X	-3.11
BIpcp		X	4.44			X	-4.63
		X	2.92	BX		X	-22.99
		X	1.39	BY		X	-16.95
		X	0.78	BYpcp		X	-4.83
		X	0.17	CD	X		5.14
		X	-0.44	ST		X	2.64
		X	-1.05				
		X	-1.66				
		X	-3.18				
		X	-4.70				

Table 5-6 cont. Wells Receiving Water from Outside the Model Domain

Observation Well	Hit model boundary E BC	Hit model boundary NE BC	Sampling depth m msl	Observation Well	Hit model boundary E BC	Hit model boundary NE BC	Sampling depth m msl
AK	X		7.39	BJ	X		4.33
ANpcp		X	7.90	BK		X	-18.89
		X	6.38	BKpcp		X	6.91
		X	4.85			X	5.39
		X	3.33			X	4.78
		X	2.72			X	4.17
		X	2.11			X	3.56
		X	1.50			X	2.95
		X	0.89			X	2.34
		X	0.28			X	0.82
		X	-1.24			X	-0.71
		X	-2.77			X	-2.23
ATpcp		X	4.08			X	-3.76
		X	3.47	BL	X		4.44
		X	2.87	BMf		X	0.40
		X	2.26	BMg		X	-0.48
		X	0.73	BMh		X	-1.44
		X	-0.79	BO		X	-13.34
		X	-2.32	BOa		X	4.93
		X	-3.84	BOb		X	4.02
AU		X	-18.73	BOc		X	3.05
AV	X		4.38	BOd		X	2.17
AW		X	-16.87	BOe		X	1.26
AX	X		-0.48	BOf		X	0.31
AY	X		4.49	BOg		X	-0.59
AZ		X	0.44	BOh		X	-1.49
BA		X	6.63	BP		X	1.91
BB		X	-5.59	BQ		X	-13.41
BC		X	-12.59	BR		X	-13.26
BCpcp		X	-3.54	BS		X	-11.58

5.2.3 Observed Specific Conductivity

Average specific conductivity profiles based on observed values recorded between August 2003 through July 2004 were plotted for locations along the supposed centerline of the deicer plume at varying distances from the upgradient basin edge. The specific conductivity for this period of record are in Appendices B and C. Figures 5-8a through c compare the average specific conductivity profiles to the limiting streamline predicted by the model for: the BM well cluster region, the BC cluster region, and the BT cluster region respectively. The wells assigned to each cluster region are listed in Table 5-7.

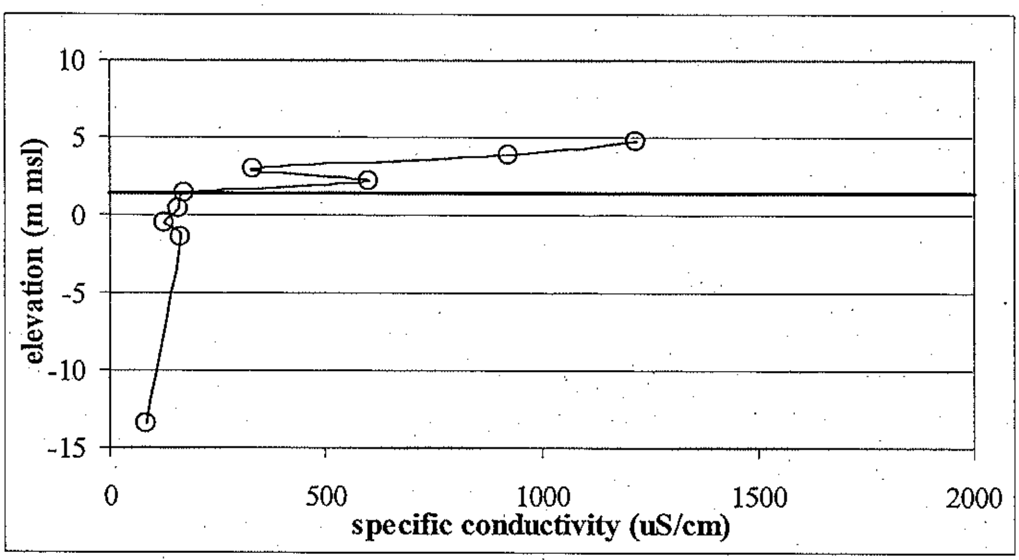

Figure 5-8a BM Cluster Average Observed Specific Conductivity Profile

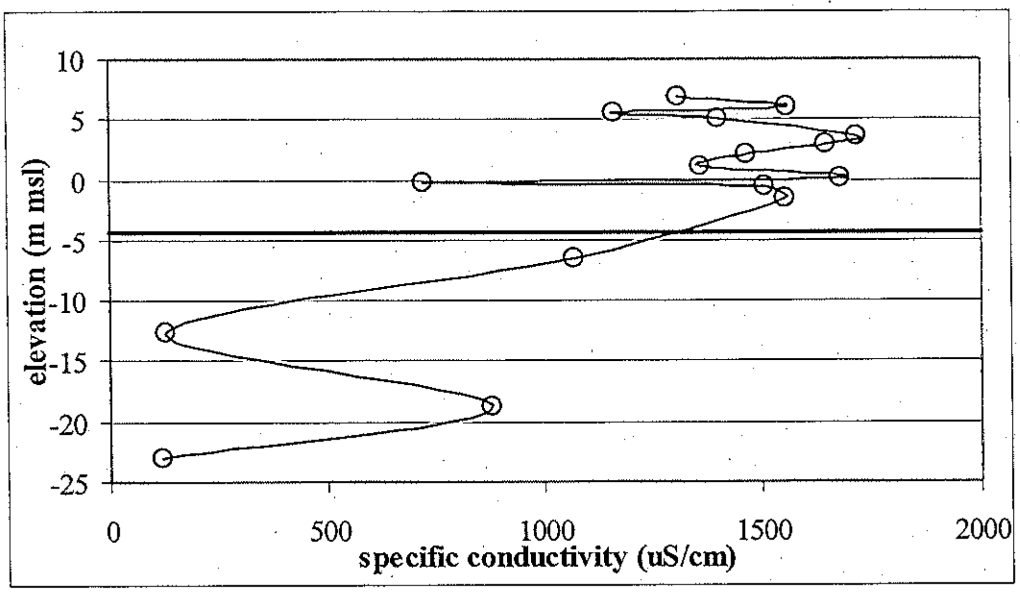

Figure 5-8b BC Cluster Average Observed Specific Conductivity Profile

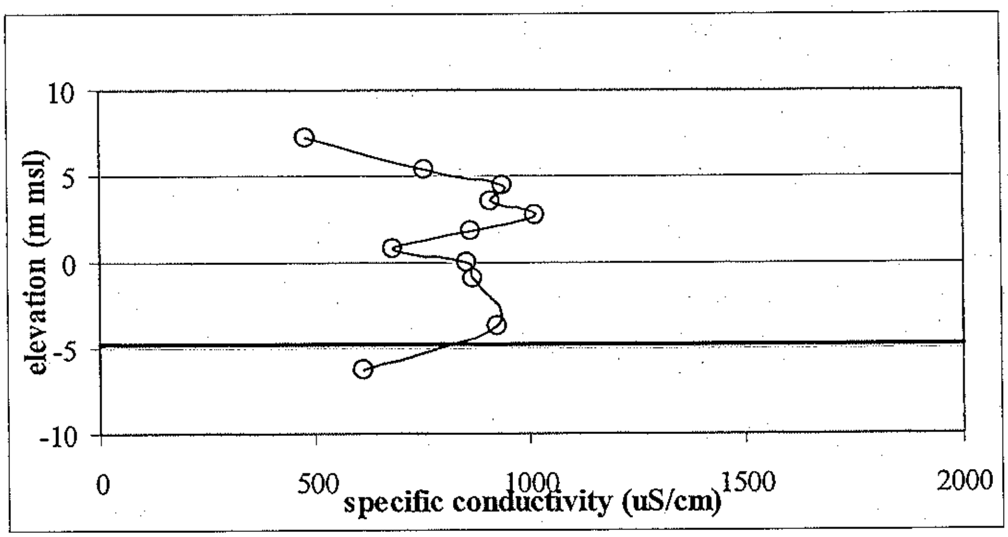

Figure 5-8c BT Cluster Average Observed Specific Conductivity Profile

Table 5-7 Wells Assigned to each Cluster Region

Cluster Region	Wells	Elevation (m msl)	Specific Conductivity (uS/cm)	Cluster Region	Wells	Elevation (m msl)	Specific Conductivity (uS/cm)
BC	BCf	6.8	1309	BT	BTk	7.3	480
	BCa	6.0	1558		BTa	5.4	759
	BD	5.6	1164		BTb	4.4	939
	BCh	5.0	1401		BTc	3.6	911
	BCb	3.6	1719		BTd	2.7	1015
	BCg	2.9	1646		BTe	1.7	864
	BCc	2.0	1467		BTf	0.7	682
	BCi	1.1	1361		BTg	-0.1	854
	BCd	0.2	1681		BTh	-1.0	867
	BCj	-0.2	721		BTj	-3.7	923
	BE	-0.5	1508		BTi	-6.3	613
	BCe	-1.6	1553				
	BF	-6.5	1068				
	BC	-12.6	129				
	AU	-18.7	880				
	BX	-23.0	119				
BM	BMa	4.8	1221				
	BMb	3.9	923				
	BMc	3.0	333				
	BMd	2.1	603				
	BMe	1.5	175				
	BMf	0.4	159				
	BMg	-0.5	127				
	BMh	-1.4	162				
	BM	-13.4	83				

The profile for the BM cluster (Figure 5-8a) shows that the limiting streamline was predicted for an elevation where specific conductivity suddenly declined with depth. In Figure 5-8b, the specific conductivity profile for the BC cluster shows that average specific conductivities were typically about 1,500 μs/cm down to an elevation of about 2 m below msl. Below this elevation, the specific conductivity appears to change behavior, oscillating with increased depth. The limiting steamline predicted was between these two zones. The profile for the BT cluster in Figure 5-8c does not indicate a noticeable difference in specific conductivity with depth, typically remaining at about 700 µs/cm, which is a slightly elevated value.

5.3 CONTAMINANT FATE AND TRANSPORT

To evaluate the fate and transport of deicing materials through the Plymouth aquifer, a backward particle tracking analysis was used with wells, where water was determined to originate in the infiltration basin, to hindcast levels of deicer entering the groundwater table in the effective basin area. The hindcasted data presented in this section represents model results, and not observed results.

A nineteen month period between November 2002 and May 2004 was evaluated with the hindcasting analysis. During this time period, deicer was applied on SR25 from November 2002 to April 2003, and again from December 2003 to March 2004. Figure 5-9 shows the observed monthly average specific conductivities in the water that discharged over the West Weir during this time period, along with times when deicer was applied. Weir data recorded for this time period are summarized in Appendix N.

Since several deicing materials (including CMA, rock salt, premix) were used on the highway area at the subject site, specific conductivity was used as a surrogate measurement of all deicing materials in the groundwater. The specific conductivity or ion concentration observed for each particle was assumed to be conserved and assigned to that particle as it traveled through the groundwater.

Calcium and magnesium levels were generally as high as 10 and 50 mg/L during the deicing seasons, and were at ambient levels (below 10 mg/L) by the autumn.

5.3.2 Specific Conductivity Fluxes

Monthly vertical fluxes of specific conductivity were found by the model hindcast data at the infiltration basin. The monthly vertical specific conductivity flux σ_{hind} was determined as follows:

$$\sigma_{hind} = \sum (\beta \times A_{cell} \times \varepsilon_M) \tag{5-3}$$

where β was the average specific conductivity assigned to an area A_{cell}, and ε_M was the monthly recharge rate at that area. For the basin, a basin recharge rate of 1.99 x 10^{-6} m/s translated to an ε_M of 5.33 m/mo. The effective basin area was split up into a grid with 5 m by 5 m cells, and the specific conductivity values hindcasted to a particular cell for that month were averaged and assigned to that 25 m^2 area. Calculations of the hindcasted fluxes are in Appendix M. The hindcasted specific conductivity fluxes for November 2002 to May 2004 are shown on Figure 5-10.

The observed monthly specific conductivity vertical flux σ_{obs} in the basin area was determined as:

$$\sigma_{obs} = \sum (\beta \times Q \times \Delta t) \tag{5-4}$$

A summary of observed data recorded at the West Weir are in Appendix N.

The observed vertical specific conductivity fluxes from November 2002 to May 2004 are shown on Figure 5-11.

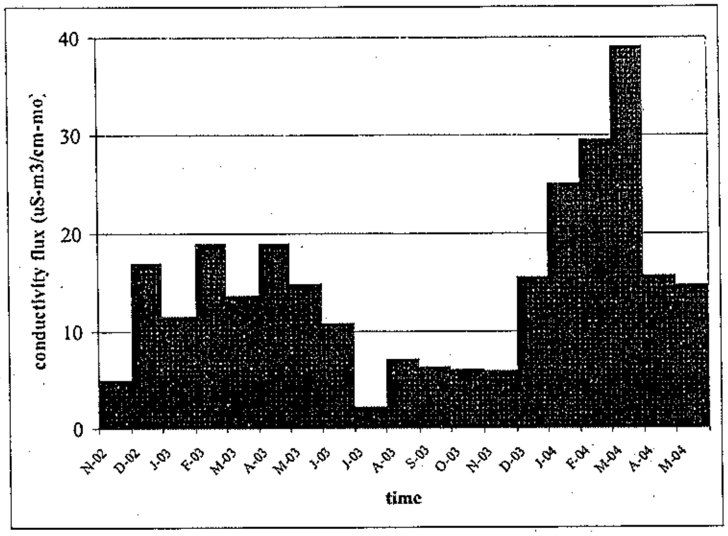

Figure 5-10   Hindcasted Specific Conductivity Flux

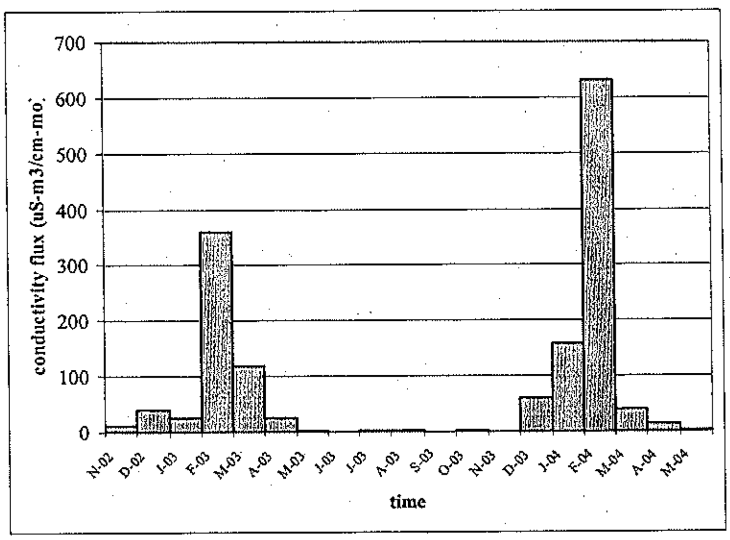

Figure 5-11   Observed Specific Conductivity Flux

The hindcasted and observed specific conductivity fluxes in the basin are compared in Table 5-8. The observed fluxes are higher than those hindcasted for the winter, and lower than those hindcasted for the summer months. The steady-state hydraulics of the model would account for these results. However, the hindcasted results capture the fact that more deicer was discharged to the basin during the second deicing season than the first.

Table 5-8 Basin Specific Conductivity Fluxes

Month	Specific conductivity flux ($x\ 10^5$ uS-m^3/cm-mo) Observed	Hindcasted
Nov-02	11.8	5.0
Dec-02	39.9	17.0
Jan-03	25.9	11.6
Feb-03	358.7	19.0
Mar-03	119.0	13.7
Apr-03	26.6	19.0
May-03	2.2	14.9
Jun-03	0.1	10.9
Jul-03	1.2	2.2
Aug-03	2.0	7.2
Sep-03	0.0	6.4
Oct-03	1.2	6.1
Nov-03	0.5	6.0
Dec-03	60.9	15.6
Jan-04	158.8	25.1
Feb-04	632.1	29.6
Mar-04	40.8	39.2
Apr-04	13.9	15.7
May-04	3.3	14.8

The monthly average monthly specific conductivity β_{mo} was determined by dividing the flux by the volume of water V infiltrating the groundwater:

$$\beta_{mo} = \frac{\Sigma(\beta \times Q \times \Delta t)}{V} \tag{5-5}$$

The observed and hindcasted average specific conductivities in the basin are listed in Table 5-9, and shown on Figure 5-12. The values compared relatively well for the winter of 2002 up through the end of 2003. However, in January and March 2004, the model hindcast significantly underestimated the average specific conductivity, and underestimated in the following spring months.

Table 5-9 Average Basin Specific Conductivity

Month	Average specific conductivity (uS/cm)	
	Observed	Hindcasted
Nov-02	546.2	387.3
Dec-02	1744.7	1272.2
Jan-03	3556.9	868.3
Feb-03	909.8	1578.2
Mar-03	582.8	1024.8
Apr-03	1974.8	1470.6
May-03	1278.5	1117.0
Jun-03	239.2	844.4
Jul-03	543.1	165.6
Aug-03	297.1	543.5
Sep-03	--	494.2
Oct-03	106.4	459.5
Nov-03	101.6	461.5
Dec-03	3336.4	1169.1
Jan-04	43618.5	1885.6
Feb-04	2917.8	2372.6
Mar-04	8280.3	2941.8
Apr-04	864.6	1218.1
May-04	576.9	1106.9

*Note: No flow was observed over the West Weir in September 2003.

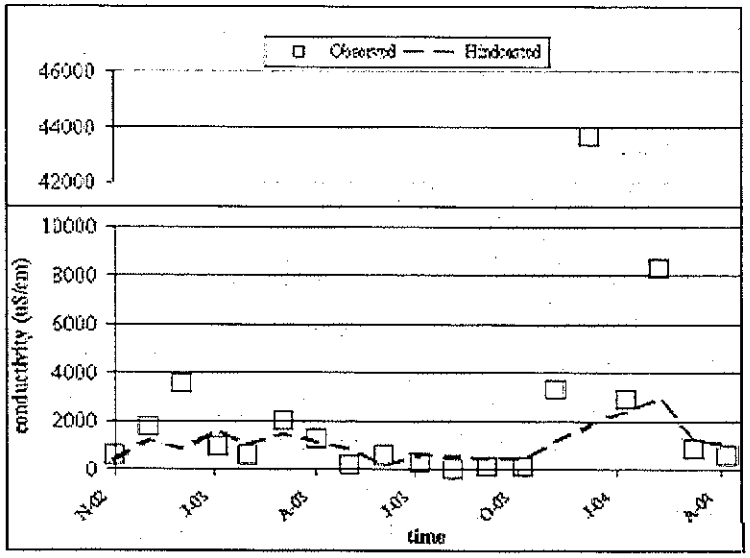

Figure 5-12 Average Basin Specific Conductivity

5.3.3 Ion Mass Fluxes

Monthly mass fluxes of each conservative deicer ion (σ_{ion}) were found for a full year after deicing began in November 2002, up until a new deicing season began in December 2003. The ion mass fluxes were determined by the model hindcast data at the infiltration basin in the same manner as the specific conductivity fluxes. Substituting concentration for specific conductivity in equation 5-3 yields the following relationship:

$$\sigma_{ion} = \sum (C \times A_{cell} \times \varepsilon_M) \qquad (5\text{-}6)$$

Figures 5-13a through d illustrate the mass fluxes hindcasted for Cl^-, Na^+, Ca^{2+}, and Mg^{2+} over the course of a year after deicing was initiated. Figures 5-13a and b indicate that the mass fluxes Na^+ and Cl^- followed similar trends throughout the course of the year, rising during deicing and peaking in the spring, and that the fluxes were on the same order of magnitude. Figures 5-13c and d show that mass fluxes of Mg^{2+} and Ca^{2+} follow similar trends, reaching low points in the summer. However, the Ca^{2+} flux appeared to remain more constant over the winter and spring than the Mg^{2+} flux, which peaks more significantly in the spring. The values are listed in Table 5-10.

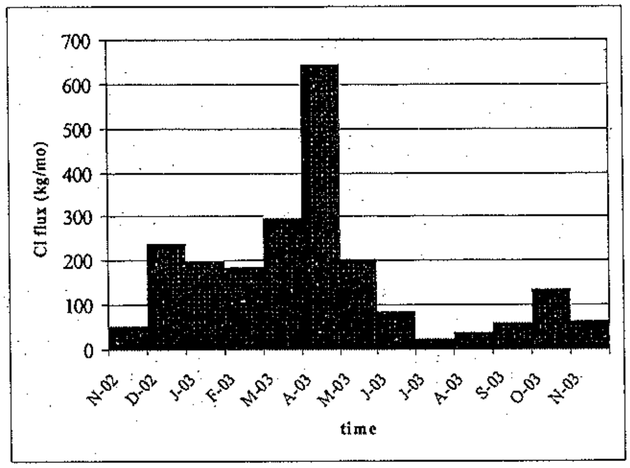

Figure 5-13a Chloride Mass Flux

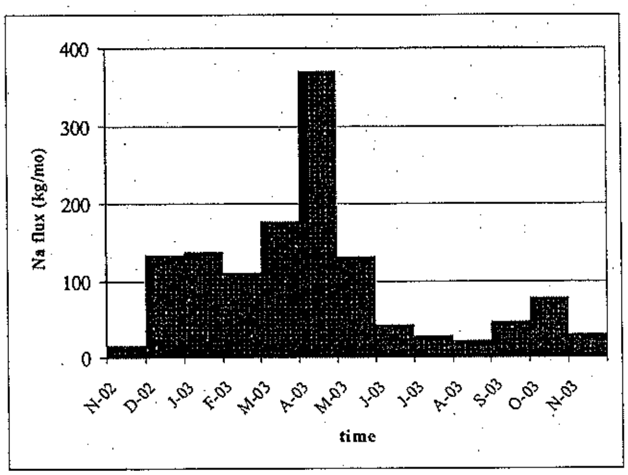

Figure 5-13b Sodium Mass Flux

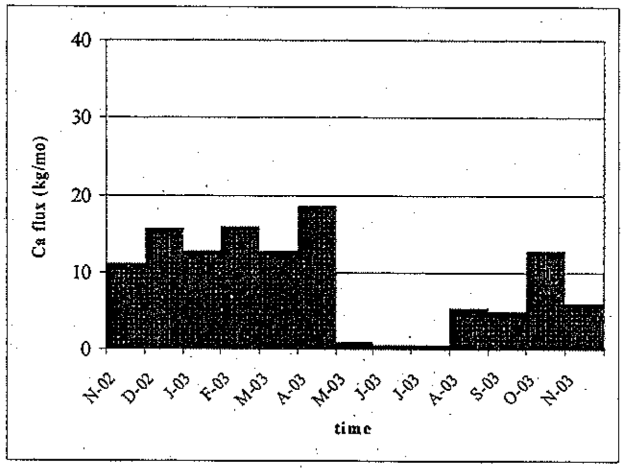

Figure 5-13c Calcium Mass Flux

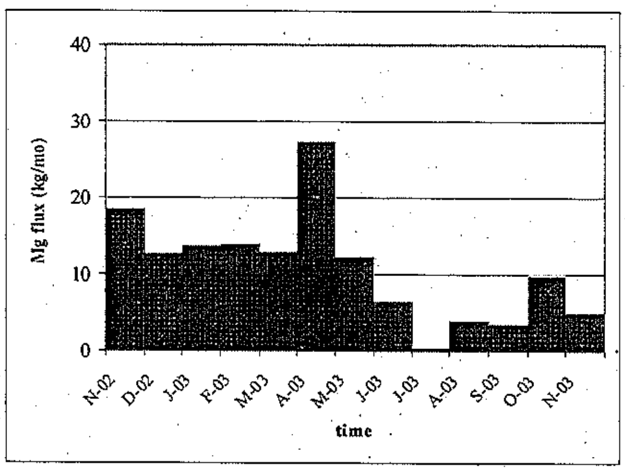

Figure 5-13d Magnesium Mass Flux

Table 5-10 Ion Mass Fluxes

Month	(kg/mo)			
	Cl^-	Na^+	Ca^{2+}	Mg^{2+}
Nov-02	55.2	17.1	11.2	18.6
Dec-02	238.7	134.2	15.8	12.7
Jan-03	202.3	137.2	12.8	13.7
Feb-03	187.5	111.7	16.0	14.0
Mar-03	299.6	177.1	12.8	12.8
Apr-03	646.4	371.3	18.6	27.3
May-03	205.0	131.0	1.0	12.3
Jun-03	86.7	43.0	0.7	6.4
Jul-03	26.5	29.1	0.7	0.5
Aug-03	40.7	22.2	5.3	3.9
Sep-03	62.1	47.3	5.0	3.6
Oct-03	134.9	77.7	12.8	9.7
Nov-03	64.0	31.0	6.0	5.0

The ratios of σ_{ion} to the specific conductivity flux, or the ion flux ratios (Λ, in units of kg-cm/mS-m^3) were determined for each conservative ion, and are listed in Table 5-11.

Table 5-11 Ion Flux Ratios

Month	(kg-cm/mS-m3)			
	Cl^-	Na^+	Ca^{2+}	Mg^{2+}
Nov-02	0.111	0.034	0.022	0.037
Dec-02	0.141	0.079	0.009	0.007
Jan-03	0.175	0.119	0.011	0.012
Feb-03	0.099	0.059	0.008	0.007
Mar-03	0.219	0.130	0.009	0.009
Apr-03	0.341	0.196	0.010	0.014
May-03	0.138	0.088	0.001	0.008
Jun-03	0.080	0.039	0.001	0.006
Jul-03	0.120	0.132	0.003	0.002
Aug-03	0.056	0.031	0.007	0.005
Sep-03	0.097	0.074	0.008	0.006
Oct-03	0.220	0.127	0.021	0.016
Nov-03	0.108	0.052	0.010	0.008
average	0.146	0.089	0.009	0.011

Figure 5-14 plots the monthly flux ratios hindcasted for Cl^-. There was a decreasing trend in the Cl^- flux ratio over the course of the year studied, which was suggestive of how quickly Cl^- dissolves and mobilizes compared to the other deicer ions.

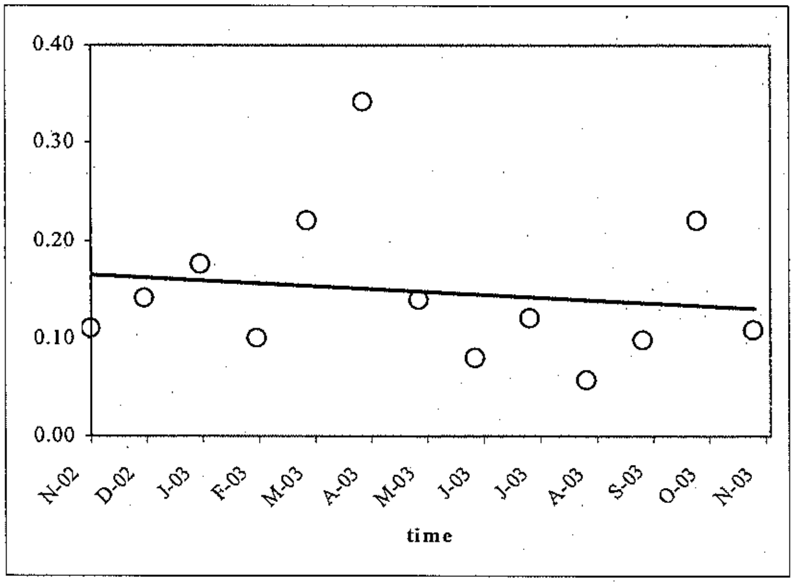

Figure 5-14 Chloride Flux Ratios

Stygar (2005) also noted a decreasing trend over the course of a year in the chloride flux ratios found in water discharging over the West Weir at the site.

The ambient ion concentrations listed in Table 2-3 were subtracted from the concentrations to hindcast the mass fluxes resulting strictly from deicer. These results were compared to the quantities of CMA, NaCl, and premix applied in the 2002 – 2003 deicer season. A record of deicers applied to SR25 is in Appendix O. The amount of NaCl, $CaCl_2$, and premix reported was applied to 147 lane miles of SR25, of which only 11 lane miles were within the paved area discharging to the infiltration basin (see Section

4.3.3). The amount of CMA reported applied exclusively to the 11 lane miles that discharge to the basin. Therefore, the masses were adjusted to reflect only what was applied to the 11 lane miles of pavement.

The mass of deicer hindcasted as recovered in the groundwater (m_r) was found as:

$$m_r = \sum_{t_A}^{t_B} \sigma_{ion} \tag{5-7}$$

where t_A is the time when deicer is first applied, and t_B is the time just before a new deicing season begins. According to this analysis, approximately 1% of the total deicer mass that was applied was recovered in the groundwater hindcasted to the infiltration basin.

The applied ion mass ratios (λ_{app}) were found as:

$$\lambda_{app} = \frac{m_{ion,app}}{m_{d,app}} \tag{5-8}$$

Acetate was not studied here because it is not a conserved ion, but it is a key constituent in CMA. To account for this, the applied mass ratio was found by dividing the ion mass that was applied ($m_{ion,\ app}$) by the total deicer mass applied ($m_{d,app}$), which included acetate.

The hindcasted ion mass ratio (λ_{hind}) was similarly found, with the total deicer mass accounting for the acetate.

$$\lambda_{hind} = \left(\frac{\sigma_{ion}}{\sum \sigma_{ion}}\right) \times \left(\frac{\sum m_{ion,app}}{m_{d,app}}\right) \tag{5-9}$$

The deicer ion mass ratios that were hindcasted are listed in Table 5-12, and compared well with the ratios of deicer actually applied.

Table 5-12 Deicer Ion Mass Ratios

Ion	λ_{app}	λ_{hind}
Ca^{2+}	0.026	0.024
Na^{+}	0.299	0.280
Cl^{-}	0.469	0.486
Mg^{2+}	0.026	0.030

6 CONCLUSIONS

6.1 SUMMARY OF WORK COMPLETED

The main goal of this research was to evaluate when and where deicer contamination infiltrated to the groundwater table at the site, with a focus on the infiltration basin. The approach used assumed that the deicing contaminant was conservative, so that only Cl^-, Na^+, Ca^{2+}, and Mg^{2+} ions were studied. Additionally, specific conductivity was used as a surrogate measurement of the deicer materials used at the site.

Groundwater samples were collected monthly by a traditional full purge sampling method from November 2002 to September 2004, from ninety-one wells located in and around the infiltration basin. Surface water samples were also collected from the exit weirs in the basin. Specific conductance was measured while extracting the water samples into sample bottles for laboratory analysis. Laboratory analysis included tests for dissolved cations and anions like Cl^-, Na^+, Ca^{2+}, and Mg^{2+}.

Electrical conductivity measurements were taken on a frequent basis (often biweekly) from nine PCP locations in the basin area. PCP data from November 2002 to December 2004 was used in this project. Rainfall and discharge through one of the exit weirs (West Weir) in the infiltration basin was monitored continuously by field instrumentation. Rainfall data from August 2003 to July 2004 was used to characterize precipitation for the model, and weir discharge data from November 2002 to May 2004 was used to characterize the quality and volume of water draining into the basin from the highway.

A steady-state three-dimensional numerical model was developed. Calibration of the hydraulic model depended on time averaged monthly hydraulic head measurements collected in monitoring wells located throughout the basin area and near the downgradient cranberry bog (Mann Bog), from August 2003 to July 2004. A constant permeability value was calibrated with the model.

Once the hydraulic model was calibrated, streamlines were used to assess the hydraulics of the Plymouth aquifer. Streamlines were predicted forward in time to determine limits of the deicer contamination plume. The limits of the deicer plume supposed by these streamline analyses were compared to average observed specific conductivites from August 2003 through July 2004.

Modeling of streamlines backward in time "hindcasts" the travel times and previous locations of the contaminant. A hindcasting analysis was performed with the model to trace observed deicer particles back to the groundwater table. Travel times and source locations of the deicer particles were determined from the analysis.

The hindcasting analysis yielded travel times and locations where deicer initially entered the groundwater table. These data were the basis for creating isopleths of specific conductivity and conservative deicer constituents for the infiltration basin over the course of two deicing seasons and one non-deicing season, from November 2002 to May 2004. Vertical specific conductivity fluxes were hindcasted at the basin, and compared to the specific conductivity fluxes observed as discharging over the West Weir. Finally, ion mass fluxes were determined for the basin, as well as ion flux ratios that compared each ion mass flux to the specific conductivity flux. The ion fluxes were also used to hindcast mass ratios of each conservative deicer constituent and compared to the ratio of deicer constituents applied on the highway.

6.2 CONCLUSIONS

6.2.1 Site Hydraulics

Once the hydraulic model was calibrated with time averaged hydraulic head measurements, it was first used to recover a constant permeability for the aquifer. A permeability of 1.5×10^{-10} m^2 was found, a value which fell within the range indicated by slug test data collected at the site in 2003.

The effective basin area, where water discharging over the West Weir infiltrated into the water table, was calibrated to 250 m^2. A basin recharge rate of 1.99×10^{-6} m/s water thus determined, which was two orders of magnitude larger than the ambient recharge rate of 1.34×10^{-8} m/s. Since the paved area serviced by the drainage system was two orders of magnitude larger than the effective basin area, this result was reasonable.

6.2.2 Streamline Analyses

The deicer contamination area emanating from the basin has been established by previous studies, and the transverse and vertical limiting streamlines were also predicted by this model. The plume was determined to be approximately 20 m wide in the east-west direction, and as deep as 12 m below the water table. This result agreed well with a past study that used a two-dimensional analytical model (Fauteux, 2002).

Streamlines were also hindcasted from observation wells back to the water table to establish which wells were receiving water from the infiltration basin. The travel times of deicer particles coming from the basin ranged from 1 day to about 1 month to reach the BM cluster (located inside the basin), and were about 4 or 5 months to reach the BY pcp location approximately 80 m away from the basin. Again, these results compared well with the results from the analytical model. Finally, the limiting streamline depth at well clusters located along the centerline of the plume was compared to observed specific conductivity profiles. The maximum limiting streamline depth z_L was 4.8 m below msl.

6.2.3 Contaminant Transport

As expected, hindcasted source isopleths of specific conductivity and ion concentrations confirmed that the infiltration basin was the largest source of deicer contamination at the site, with deicer infiltration peaking in the winter and in the spring. Specific conductivity values hindcasted were as high as 10,000 μS/cm in the winter and as high as 5,000 μS/cm in the spring. Chloride concentrations hindcasted were as high as 2,500 mg/L in the winter and as low as 10 mg/L in the summer and fall. Sodium concentrations hindcasted were as high as 1,500 mg/L in the winter and as low as 10 mg/L in the summer and fall. Calcium and magnesium concentrations hindcasted were as high as 50 mg/L in the winter and spring and below 10 mg/L in the summer and fall. A comparison of the monthly specific conductivity fluxes hindcasted with the model for a nineteen month period (which included the deicing seasons of 2002 – 2003 and 2003 – 2004) to the fluxes observed over the West Weir indicated that only general flux trends could be indicated by the hindcasts. The steady-state hydraulics of the model underestimated the flux of specific conductivity expected during the winter and spring.

Hindcasted average monthly specific conductivities of the groundwater in the basin for the first deicer season compared well to the specific conductivity observed over the West Weir, while the second deicing season was underestimated by the hindcasts. However, these results may be attributed to the fact that the basin area was more deeply frozen over the course of the winter of 2003 – 2004 than the previous winter, and a majority of basin wells could not be sampled until the spring. The frozen ground may not have allowed the discharge over the weir to fully infiltrate the water table.

The ion flux ratios found over the course of a year for Cl^- suggested a decreasing trend, which was also found for the water discharging over the weir by a previous study (Stygar, 2005). This result indicates the high mobility and solubility of Cl^- in comparison to the other deicer constituents. Finally, the hindcasted mass ratios for each deicer ion compared favorably to the composition of the deicers applied to the section of SR25 discharging to the basin.

It may be concluded that this particle hindcasting scheme may be used as a tool to determine relative orders of magnitude of deicer contaminant, but further investigation is needed to validate its use to find specific concentrations. One reason for this result may be the fact that larger storms pushed the contamination deeper into the aquifer than the steady-state hydraulics allowed in the model, and since dispersion was ignored in the particle analysis, this contamination was not picked up by the model.

6.3 RECOMMENDATIONS

The knowledge of the hydraulics of the site aquifer gained from previous studies was used as the basis for the study of deicer contaminant transport at the site. Further study into the hydraulics of the site and the nature of the deicer contaminants should be performed to expand on the conclusions of this project.

The calibration of the hydraulic model depended on hydraulic head data time averaged over a twelve month period. Calibrating the model with head data averaged over a period of several years, further refining the layering of the model domain, and validating the model with an independent head data set might provide more faith in the calibration. It would also prove worthwhile to study several more deicing seasons, and compare infiltration results for milder winters to colder winters.

While the specific conductivity database includes biweekly measurements, only monthly analysis of the ions in the groundwater is performed. More frequent groundwater sampling would provide a better dataset that could be modeled and compared to the specific conductivity. Finally, further study is suggested of pervious areas (e.g., shoulders, medians) where deicer may be immobilized to gain a better understanding of where else deicer persists after leaving the highway pavement.

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APPENDIX A
August 2003 – July 2004 Precipitation Data

1 in=25.4 mm

Cranberry Station Data

Date	Total Adj Precip in	Total Adj Precip m
31-Aug-03	2.82	0.071628
30-Sep-03	2.37	0.060198
31-Oct-03	5.23	0.132842
30-Nov-03	2.94	0.074676
31-Dec-03	5.99	0.152146
31-Jan-04	1.80	0.04572
29-Feb-04	2.41	0.061214
31-Mar-04	2.21	0.056134
30-Apr-04	5.54	0.140716
31-May-04	2.80	0.07112
30-Jun-04	1.65	0.04191
31-Jul-04	2.73	0.069342
Aug 03-Jul 04 Total	38.49	0.98
	977.646	mm/yr
	0.977646	m/yr
	3.1001E-08	m/s

Notes:

Cran Station reports rain as rain+melted snow--it is adjusted precip

Basin Rain Gauge Data

Date	Last Time Rec of Mo	Acc Precip in	Supp Cran data Rain	Adj Precip in	Adj Precip m
Aug-03	9/1/2003 0:00	2.57		2.57	0.065278
Sep-03	10/1/2003 0:00	1.93		1.93	0.049022
Oct-03	10/30/2003 23:00	4.79	0.00	4.79	0.121666
Nov-03	12/1/2003 0:00	2.17		2.17	0.055118
Dec-03	1/1/2004 0:00	5.89		5.89	0.149606
Jan-04	2/1/2004 0:00	1.63		1.63	0.041402
Feb-04	3/1/2004 0:00	2.59		2.59	0.065786
Mar-04	4/1/2004 0:00	2.46		2.46	0.062484
Apr-04	5/1/2004 0:00	4.95		4.95	0.12573
May-04	6/1/2004 0:00	2.26		2.26	0.057404
Jun-04	7/1/2004 0:00	1.34	0.47	1.81	0.045974
Jul-04	8/1/2004 0:00	2.26		2.26	0.057404
	Aug 03-Jul 04 Total			35.31	0.897
				896.874	mm/yr
				0.896874	m/yr
				2.84397E-08	m/s

Notes:

Supplement missing gage data with Cran Station data

Data missing 10/30/04 23:00 to 11/1---but no rain for this time period recorded by Cran

Data missing 6/2/04 17:20 to 6/6/04 12:00-supp with Cran Station

STATION: EAST WAREHAM | MONTH: July | YEAR: 03 | FORM (12-93)

NATIONAL WEATHER SERVICE

RECORD OF RIVER AND CLIMATOLOGICAL OBSERVATIONS

STATE: MA | COUNTY: Plymouth | RIVER:

TIME (local) OF OBSERVATION RIVER: | TEMP: MAN'T | PRECIPITATION: 9 AM | STANDARD TIME IN USE:

TYPE OF RIVER GAGE: | ELEVATION OF RIVER GAGE ZERO: Ft. | FLOOD STAGE: Ft. | NORMAL POOL STAGE: Ft.

DATE	TEMPERATURE F. 24 HRS. ENDING AT OBSERVATION MAX.	MIN.	AT OBSN.	PRECIPITATION 24-HR AMOUNTS Rain, melted snow, etc. (ins. and hundredths)	Snow, ice pellets, hail (ins. and tenths)	At Ob. Snow, ice pellets, hail, ice on ground (ins.)	WEATHER Fog	Ice Pellets	Glaze	Thunder	Hail	Damaging Winds	REMARKS (Special observations, etc.)
1	81	59	62	0									Sunny AM Afternoon Clouds, windy
2	80	57	68	0									Clear + Sunny
3	74	65	68	0									Mostly Sunny + Hot Afternoon Showers
4	76	68	69	.38									Mostly Sunny + Hot
5	85	69	71	0			X						Sunny, Hot + Humid AM Fog
6	90	69	69	0			X						Partly Cloudy, Hot + Humid, AM Fog
7	85	66	71	0									Sunny, Hot + Humid
8	85	71	75	0			X						Haze + fog AM
9	81	61	61	0									Cloudy PM shower
10	76	57	66	.23			X						Mostly Clear Fog AM
11	72	60	61	0			X			X			Overcast, Showers, Fog AM
12	79	60	70	.90			X						AM Fog Cloudy AM sunny PM
13	79	64	64	0			X						AM Fog + mist Mostly Sunny
14	72	63	65	0									Cloudy am,
15	76	64	64	.01									Cloudy am Sunny PM
16	76	63	71	0									Mostly Cloudy am
17	80	67	67	T									Clear Sunny am, Partly Cloudy PM
18	81	64	70	0									Clear Sunny AM, mostly Cloudy PM
19	80	65	67	.11									Mostly Sunny
20	82	58	67	0									Clear Sunny
21	79	66	72	0									Partly Cloudy am, Clear pm
22	75	72	74	T									mostly Cloudy am windy, humid
23	79	73	73	.03									Cloudy, windy, humid
24	78	60	72	.27									Rain Cloudy, Windy
25	82	68	68	T									Partly Cloudy
26	84	63	71	0									Clear, windy
27	87	70	79	0									Cloudy, humid, windy,
28	85	68	68	0									Mostly Clear
29	79	64	64	0.22									Rain clearing mid morning
30	76	61	61	T									Mostly Clear, Partly Cloudy PM
31	77	56	64	0									mostly clear
SUM	79.7	64.2	SUM	2.15									

CHECK BAR (For wire-weight) NORMAL CK. BAR | READING | DATE

CONDITION OF RIVER AT GAGE

A. Obstructed by rough ice.
B. Frozen, but open at gage.
C. Upper surface of smooth ice.
D. Ice gorge above gage.
E. Ice gorge below gage
F. Shore ice.
G. Floating ice.
H. Pool stage.

OBSERVER:

SUPERVISING OFFICE: WFO, TAUNTON

STATION INDEX NO. 19-2451-3

122

STATION (Climatological) EAST WAREHAM	(River Station, if different)	MONTH aug	2003	WS FORM B-91 (12-93)	U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL WEATHER SERVICE
STATE MA	COUNTY Plymouth	RIVER			
TIME (local) OF OBSERVATION RIVER Midnight	TEMP. MDNT	PRECIPITATION 9 AM	STANDARD TIME IN USE		
TYPE OF RIVER GAGE 9:AM	ELEVATION OF RIVER GAGE ZERO Ft.	FLOOD STAGE Ft.	NORMAL POOL STAGE Ft.		

RECORD OF RIVER AND CLIMATOLOGICAL OBSERVATIONS

DATE	TEMPERATURE F. 24 HRS. ENDING AT OBSERVATION MAX.	MIN.	AT OBSN.	PRECIPITATION 24-HR AMOUNTS Rain, melted snow, etc. (ins. and hundredths)	Snow, ice pellets (ins. and tenths)	At Ob. Snow, ice pellets, hail, ice on ground (ins.)	WEATHER (Calendar Day) Fog	Ice Pellets	Glaze	Thunder	Hail	Damaging Winds	Time of observation if different from above	RIVER STAGE CONDITION	GAGE READING AT ___ A.M.	TENDENCY	REMARKS (Special observations, etc.)
1	80	64	73	0.17			X										overcaste, drizzle, showers, Ptly cldy PM
2	81	73	74	0.22													Overcast, clearing ~~early~~ midmorning, humi
3	82	74	75	—													Overcast, Clearing mid morning, humid
4	81	74	74	—													overcast, ~~Rain off and on~~ Rain off and,
5	77	71	71	0.07													Overcast, Rain off and on, humid,
6	81	72	72	0.39													Overcast, Rain off and on, humid, Ptly
7	79	71	72	0.21													Overcast
8	80	72	73	1.04													Overcast, Rain
9	78	71	75	.10													Am showers Broken Clouds PM
10	82	73	73	.00													Windy, Mostly Cloudy PM Shower
11	81	73	74	.04													Mostly Cloudy, showers,
12	82	73	73	.25													mostly cloudy, humid, Ptly Cldy PM
13	81	69	69	.08													mostly cloudy, humid
14	88	66	71	0													Sunny
15	86	62	72	0													mostly clear
16	84	70	72	0													Ptly Cloudy
17	73	65	65	T													Cloudy, Rain PM
18	76	63	64	.25													mostly clear
19	83	62	70	T													Clear
20	87	65	72	0													mostly clear
21	87	67	73	0													mostly clear, humid
22	83	72	74	0													mostly clear, humid
23	83	58	58	0													Mostly sunny
24	72	53	58	0													Sunny, dry
25	79	55	70	0													mostly cloudy, cool
26	79	63	72	0													mostly clear
27	86	70	70	0													Partly cloudy
28	77	57	57	0													mostly clear
29	79	55	75	0													Mostly clear
30	85	64	64	0													Partly cloudy
31	70	52	52	0													Mostly sunny
SUM	2502	2049	SUM	2.82													

CHECK BAR (For wire-weight) NORMAL CK. BAR

READING | DATE

CONDITION OF RIVER AT GAGE

A. Obstructed by rough ice.
B. Frozen, but open at gage.
C. Upper surface of smooth ice.
D. Ice gorge above gage.
E. Ice gorge below gage
F. Shore ice.
G. Floating ice.
H. Pool stage.

OBSERVER

SUPERVISING OFFICE: WFO, TAUNTON

STATION INDEX NO.: 19-2451-3

Post-it™ brand fax transmittal memo 7671 | # of pages ▸ 1

To Shem Stygar | From Deb Cannox
Co. | Co.
Dept. | Phone #
Fax # 545-2202 | Fax #

WS FORM B-91 (12-93)

RECOR

STATION (Climatological) EASTWAREHAM (River Station, if different)

MONTH SEPT 2003

STATE MA | COUNTY PLYMOUTH | RIVER

TIME (local) OF OBSERVATION RIVER MIDNIGHT | TEMP. MDNT | PRECIPITATION 9am | STANDARD TIME IN USE

TYPE OF RIVER GAGE | ELEVATION OF RIVER GAGE ZERO Ft. | FLOOD STAGE Ft. | NORMAL POOL STAGE Ft.

DATE	TEMPERATURE F. 24 HRS. ENDING AT OBSERVATION MAX.	MIN.	AT OBSN.	PRECIPITATION 24-HR AMOUNTS Rain, melted snow, etc. (ins. and hundredths)	Snow, ice pellets (ins. and tenths)	At Ob. Snow, ice pellets, hail, ice on ground (ins.)	REMARKS (Special observations, etc.)
1	70	52	60	0			Cloudy, drizzle late
2	63	56	58	1.11			Rain then drizzle
3	72	58	65	0.25			Partly Cloudy
4	72	64	69	0.70			Rain
5	76	58	57	0.35			Cloudy
6	73	55	59	0			mostly Sunny
7	78	53	61	0			Fog AM Sunny PM
8	70	52	51	0			mostly Cloudy, cool
9	66	46	46	0			mostly cloudy, cool
10	73	44	55	0			mostly Clear, cool
11	72	52	59	0			mostly clear, cool
12	68	51	61	0			Mostly Clear
13	78	61	68	0			mostly Cloudy
14	83	66	66	0			Mostly Cloudy
15	81	64	70	0			Partly Cloudy
16	76	64	63	0.24			Cloudy, Lt. Rain, Ptly cloudy PM
17	73	56	59	T			Partly cloudy
18	71	57	65	0			Partly cloudy
19	75	65	72	0			Cloudy, a.m. [illegible], showers
20	79	64	64	0.05			Partly cloudy, Humid
21	73	55	55	0			Mostly Sunny, dry
22	74	54	59	0			Mostly Sunny, High Thin Ovc. P.M.
23	74	59	60	0			Cloudy
24	74	52	61	0.12			Mostly Sunny
25	74	55	64	0			Mostly Sunny
26	79	57	62	0			Clear, Sunny
27	82	62	67	0			Mostly Sunny, humid
28	76	66	67	0			Fog AM, [illegible] Cloudy
29	72	52	52	0.05			Mostly Sunny
30	68	46	46	0			Mostly Sunny
31							
SUM	2245	1696	SUM	2.37			

PRECIPITATION: Draw a straight line (——) through hours precipitation was observed, and a waved line (∼∼∼) through hours precipitation probably occurred unobserved. A.M. NOON P.M.

WEATHER (Calendar Day): Mark 'X' for all types occurring each day. Fog | Ice Pellets | Glaze | Thunder | Hail | Damaging Winds | Time of observation different from above | CONDITION | GAGE READING AT ___ A.M. | TENDENCY

CHECK BAR (For wire-weight) NORMAL CK. BAR | READING | DATE

OBSERVER

CONDITION OF RIVER AT GAGE
A. Obstructed by rough ice.
B. Frozen, but open at gage.
C. Upper surface of smooth ice.
D. Ice gorge above gage.
E. Ice gorge below gage
F. Shore ice.
G. Floating ice.
H. Pool stage.

SUPERVISING OFFICE WFO, TAUNTON

STATION INDEX NO. 19-2451-3

EAST WAREHAM

Month: Oct 19 2003

WS FORM B-91 (12-93)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE

RECORD OF RIVER AND CLIMATOLOGICAL OBSERVATIONS

STATE	MA
COUNTY	Plymouth
RIVER	
TIME (local) OF OBSERVATION RIVER	Midnight
TEMP.	MDNT
PRECIPITATION	9AM
STANDARD TIME IN USE	
TYPE OF RIVER GAGE	
ELEVATION OF RIVER GAGE ZERO	Ft.
FLOOD STAGE	Ft.
NORMAL POOL STAGE	Ft.

TEMPERATURE F. — 24 HRS. ENDING AT OBSERVATION; PRECIPITATION — 24-HR AMOUNTS, At Ob; Draw a straight line (——) through hours precipitation was observed, and a waved line (~~~~) through hours precipitation probably occurred unobserved. WEATHER (Calendar Day) — Mark 'X' for all types occurring each day. RIVER STAGE — GAGE READING AT ___ A.M.

DATE	MAX.	MIN.	AT OBSN.	Rain, melted snow, etc. (ins. and hundredths)	Snow, ice pellets (ins. and tenths)	Snow, ice pellets, hail, ice on ground (ins.)	Fog	Ice Pellets	Glaze	Thunder	Hail	Damaging Winds	Time of observation if different from above	CONDITION	GAGE READING AT A.M.	TENDENCY	REMARKS (Special observations, etc.)
1	66	43	50	0													Mostly Cloudy, [illegible]
2	66	42	43	T													Mostly Cloudy
3	57	38	53	0													Mostly Clear
4	66	53	54	0													Mostly Cloudy, H rain
5	60	38	38	0.03													Partly Cloudy
6	61	37	37	0													Mostly Clear
7	62	35	49	0.04													Mostly Clear
8	72	43	61	0													Mostly Clear
9	71	54	57	0.01			X										Mostly Cloudy Am mostly clear Pm
10	63	56	56	0.01			X										Mostly Cloudy overcast Am Mostly clear mid-day Pm
11	62	55	55	0													Mostly Sunny
12	62	55	58	.37													rain, overcast
13	68	52	52	.17													Partly Cloudy
14	65	42	60	1.50								X					Mostly Cloudy
15	64	52	52	0.01													mostly clear
16	69	41	41	0													Clear
17	60	39	46	.11													Mostly Clear
18	52	36	39	.31													Partly Clear
19	44	36	36	.20													Overcaste, rain off/on
20	55	30	52	0.01													Mostly Clear (Am, Black ice)
21	66	52	54	T													Partly Cloudy, overcast, rain Pm
22	54	40	40	.02													overcast rain
23	40	35	35	.02							X						Cloudy, brief Hail
24	46	28	28	0													Partly Cloudy
25	55	27	55	0													Mostly Sunny
26	61	55	60	0.03													overcast, drizzle Am
27	66	55	55	0.02													Mostly Clear, rain Pm
28	61	48	52	1.05													partly cloudy
29	70	52	52	1.12													Mostly Cloudy, overcast, Rain
30	61	40	40	.20													Mostly Sunny
31	62	37	55	T													Mostly Clear
SUM	1881	1348	SUM	5.23			Fog	Ice Pel.	Glaze	Thund.	Hail	Dam. Winds					

CONDITION OF RIVER AT GAGE

60.7 43.5

A. Obstructed by rough ice.
B. Frozen, but open at gage.
C. Upper surface of smooth ice.
D. Ice gorge above gage.
E. Ice gorge below gage.
F. Shore ice.
G. Floating ice.
H. Pool stage.

CHECK BAR (For wire-weight) NORMAL CK. BAR

READING	DATE

OBSERVER

SUPERVISING OFFICE: WFO, TAUNTON

STATION INDEX NO.: 19-2451-3

NOV-07-2003 08:20 U-MASS CRAN STATION P.02/02

124

TOTAL P.02

P. 02

STATION (Climatological): EAST WAREHAM (River Station, if different)
MONTH: NOV 2003
STATE: MA **COUNTY:** Plymouth **RIVER:**
TIME (local) OF OBSERVATION RIVER: Midnight **TEMP.:** MDNT **PRECIPITATION:** 9AM **STANDARD TIME IN USE:**
TYPE OF RIVER GAGE: 9 AM **ELEVATION OF RIVER GAGE ZERO:** Ft. **FLOOD STAGE:** Ft. **NORMAL POOL STAGE:** Ft.

WS FORM B-91 (12-93)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE

RECORD OF RIVER AND CLIMATOLOGICAL OBSERVATIONS

TOTAL P. 02

DATE	TEMPERATURE F. 24 HRS. ENDING AT OBSERVATION MAX.	MIN.	AT OBSN.	PRECIPITATION 24-HR AMOUNTS Rain, melted snow, etc. (ins. and hundredths)	Snow, ice pellets, (ins. and tenths)	At Ob. Snow, ice pellets, hail, ice on ground (ins.)	WEATHER (Calendar Day) Fog	Ice Pellets	Glaze	Thunder	Hail	Damaging Winds	Time of observation if different from above	RIVER STAGE CONDITION	GAGE READING AT ___ A.M.	TENDENCY	REMARKS (Special observations, etc.)
1	65	54	54	0													Mostly Sunny
2	61	53	55	0													Mostly Sunny
3	69	53	54	T													Partly Cloudy
4	54	45	46	T													Lt Rain cloudy overcast
5	62	46	61	T						X							Mostly [illegible] Rain overcast am, Fog late PM
6	61	50	51	0.68													Cloudy overcast, Rain Late PM
7	56	41	46	0.12													Partly Cloudy
8	46	28	28	0													Mostly Sunny
9	40	21	23	0													Mostly Sunny
10	46	21	28	0													Clear Sunny
11	53	25	52	0													Partly cloudy AM, mostly cloudy PM
12	55	47	53	.15													Cloudy, overcast
13	58	39	39	.08													Mostly cloudy AM, windy, Partly cloudy PM
14	40	34	37	0													Mostly Sunny, windy
15	45	32	32	0													Mostly Sunny, windy
16	49	24	40	0													Mostly Sunny, Cloudy Early PM
17	48	37	37	0													Mostly cloudy, Rain Early PM.
18	55	30	36	.05													Clear Sunny
19	57	36	57	T													Mostly Cloudy
20	59	43	43	0.39													Overcast / Rain
21	47	43	47	0.66													Overcast Lt Rain
22	49	34	34	T													Mostly Sunny
23	48	33	33	0													Mostly Sunny
24	48	31	48	0													Mostly Cloudy
25	49	28	28	0.21													Mostly Clear
26	49	26	40	0													Mostly Sunny
27	55	34	47	0													Mostly Sunny
28	62	44	61	.08													Rain lt [illegible]
29	61	37	37	0.52													Rain Clearing + windy
30	48	37	45	0													Mostly Sunny + windy
31				0													
SUM	1595	1106	SUM	2.94			Fog	Ice Pel.	Glaze	Thund.	Hail	Dam. Winds					

CHECK BAR (For wire-weight) NORMAL CK. BAR

READING	DATE

CONDITION OF RIVER AT GAGE

A. Obstructed by rough ice.
B. Frozen, but open at gage.
C. Upper surface of smooth ice.
D. Ice gorge above gage.
E. Ice gorge below gage.
F. Shore ice.
G. Floating ice.
H. Pool stage.

OBSERVER:

SUPERVISING OFFICE: WFO, TAUNTON

STATION INDEX NO.: 19-2451-3

WS FORM B-91 (12-93)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE

RECORD OF RIVER AND CLIMATOLOGICAL OBSERVATIONS

STATION (Climatological): EAST WAREHAM (River Station, if different):
MONTH: Dec 2003
STATE: MA COUNTY: Plymouth RIVER:
TIME (local) OF OBSERVATION RIVER: Mid Night TEMP. MDNT PRECIPITATION 9AM STANDARD TIME IN USE:
TYPE OF RIVER GAGE: ELEVATION OF RIVER GAGE ZERO: Ft. FLOOD STAGE: Ft. NORMAL POOL STAGE: Ft.

DATE	TEMPERATURE F. 24 HRS. ENDING AT OBSERVATION MAX.	MIN.	AT OBSN.	PRECIPITATION 24-HR AMOUNTS Rain, melted snow, etc. (Ins. and hundredths)	Snow, ice pellets, (Ins. and tenths)	At Ob. Snow, ice pellets, hail, ice on ground (Ins.)	Fog	Ice Pellets	Glaze	Thunder	Hail	Damaging Winds	REMARKS (Special observations, etc.)
1	53	33	33	0	0	0							Sunny - windy
2	36	17	17	0	0	0							Mostly sunny - windy - snow flurries
3	30	16	27	0	0	0							Sunny-windy
4	39	17	23	0	0	0							mostly Cloudy
5	34	17	31	0	0	0							Partly cloudy, Light Snow
6	37	31	34	.75	7.5	7.5						X	Snow early / Chang to rain
7	35	26	27	2.40	3.0	7						X	Rain, Changing to Snow V. windy
8	34	19	21	.35	6.5	2.9							Clear Sunny
9	36	20	31	0	0	2.4							Clear, Sunny
10	43	27	42	0	0	2.5							Mostly Cloudy
11	55	41	41	0	0	1.1	X						Cloudy misty, rain mid aft, windy
12	42	30	30	0.60	0	0							Clear
13	32	19	19	0	0	0							Partly cloudy
14	41	19	41	0	0	0							Snow Chg to rain
15	48	30	30	1.25	3.5	0	X						[illegible], overcast Snow/Sleet Snow
16	44	27	29	0	T	0							Clear, Sunny
17	56	36	45	0	0	0							Partly Cloudy
18	45	32	32	0.24	0	0							Clear, Sunny
19	40	27	28	0	0	0							Clear, Sunny
20	41	20	29	0	0	0							Mostly Sunny
21	37	21	36	0	0	0							Mostly Sunny
22	48	33	39	0	0	0							mostly Sunny, Thin overcast
23	51	39	46	0	0	0							Partly Cloudy / warm
24	57	47	50	0	0	0							Partly Cloudy / warm
25	51	36	36	0.22	0	0	X						Cloudy Am fog Lt showers
26	39	32	35	0.05	0	0							Mostly Sunny
27	47	27	27	0	0	0							Clear + Sunny / warm
28	49	22	32	0	0	0							Clear + Sunny / warm
29	56	30	41	0	0	0							Sunny/warm
30	54	39	39	0	0	0							Overcast windy
31	46	37	41	0.03	0	0							Partly Cloudy Some Sunshine
SUM	1356	867	SUM	5.99	14.5								

CHECK BAR (For wire-weight) NORMAL CK. BAR

READING DATE

CONDITION OF RIVER AT GAGE

A. Obstructed by rough ice.
B. Frozen, but open at gage.
C. Upper surface of smooth ice.
D. Ice gorge above gage.
E. Ice gorge below gage
F. Shore ice.
G. Floating ice.
H. Pool stage.

OBSERVER: Deborah Cannon

SUPERVISING OFFICE: TAUNTON

STATION INDEX NO. 19-2451-3

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WS FORM B-91 (12-93)

RECORD

STATION (Climatological) EAST WAREHAM (River Station, if different)
MONTH JAN 2004
STATE MA
COUNTY Plymouth
RIVER
TIME (local) OF OBSERVATION RIVER midNight
TEMP. MDNT
PRECIPITATION 9AM
STANDARD TIME IN USE
TYPE OF RIVER GAGE
ELEVATION OF RIVER GAGE ZERO Ft.
FLOOD STAGE Ft.
NORMAL POOL STAGE Ft.

DATE	TEMPERATURE F. 24 HRS. ENDING AT OBSERVATION MAX.	MIN.	AT OBSN.	PRECIPITATION 24-HR AMOUNTS Rain, melted snow, etc. (ins. and hundredths)	Snow, ice pellets, hail (ins. and tenths)	At Ob Snow, ice pellets, hail, ice on ground (ins.)	WEATHER (Calendar Day) Fog	Ice Pellets	Glaze	Thunder	Hail	Damaging Winds	REMARKS (Special observations, etc.)
1	45	29	29	0	0	0							SUNNY
2	38	25	37	.06	.50	.50							AMSNOW OVERCAST
3	46	36	44	.03	.25	0	X						Overcast Rain off + ON
4	50	37	37	0	0	0							Overcast Rain
5	38	36	37	.95	0	0							Overcast, Lt Rain
6	37	22	22	0.15	T	0							mostlyClear + Sunny snowburst PM
7	24	18	19	0	0	0							mostlyClear + Cold
8	23	13	13	0	0	0							mostly clear + cold
9	13	3	3	0	0	0							[illegible]
10	14	-0.4	5	0	0	0							mostlyClear
11	27	2	27	0	0	0							Partly Cloudy
12	33	24	24	0.06	1.70	1.70							overcast, flurries
13	42	12	12	T	.05	.30							overcast
14	11	-0.4	6	0	0	.07							mostly clear
15	9	-4	-4	.05	1.56	1.96							overcast, ltSnow
16	14	-6	12	0	0	1.16							mostly clear, sunny, windy
17	39	13	27	0	0	0.5							Sunny, clear
18	36	28	28	.05	.02	0.52							[illegible]
19	28	17	17	0.42	1.18	1.70							Sunny, [illegible]
20	25	13	17	0	0	1.6							Mostly Clear
21	31	9	9	0	0	0.9							Mostly [illegible]
22	37	7	23	0	0	0.55							Cloudy, overcast, Lt snow P.M.
23	22	11	11	0	0	0.54							mostly clear
24	19	7	7	0	0	0.54							Clear, Sunny
25	17	1	9	0	0	0.54							Clear, Sunny
26	18	8	18	0	0	0.53							Mostly clear
27	27	18	25	0	0	0.50							Cloudy
28	27	21	26	0.01	.70	1.20							overcast snow
29	28	18	18	0.04	2.13	2.83							mostly clear increasing clouds-Windy
30	26	14	18	0	0	1.90							mostly clear
31	28	17	18	0	0	1.43							[illegible]
SUM	28	14.2	SUM	1.20	8.09								

CHECK BAR (For wire-weight) NORMAL CK. BAR
READING
DATE

CONDITION OF RIVER AT GAGE

A. Obstructed by rough ice.
B. Frozen, but open at gage.
C. Upper surface of smooth ice.
D. Ice gorge above gage.
E. Ice gorge below gage.
F. Shore ice.
G. Floating ice.
H. Pool stage.

OBSERVER Deborah Carson

SUPERVISING OFFICE WFO, TAUNTON

STATION INDEX NO. 19-2451-3

STATION (Climatological) EAST WAREHAM	(River Station, if different)	MONTH Feb	2004
STATE MA	COUNTY Plymouth	RIVER	
TIME (local) OF OBSERVATION RIVER midnight	TEMP. MDMT	PRECIPITATION 9AM	STANDARD TIME IN USE
TYPE OF RIVER GAGE	ELEVATION OF RIVER GAGE ZERO Ft.	FLOOD STAGE Ft.	NORMAL POOL STAGE Ft.

WS FORM B-91
(12-93)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE

RECORD OF RIVER AND CLIMATOLOGICAL OBSERVATIONS

DATE	TEMPERATURE F. 24 HRS. ENDING AT OBSERVATION MAX.	MIN.	AT OBSN.	PRECIPITATION 24-HR AMOUNTS Rain, melted snow, etc. (Ins. and hundredths)	Snow, ice pellets (Ins. and tenths)	At Ob. Snow, ice pellets, hail, ice on ground (Ins.)	WEATHER (Calendar Day) Fog	Ice Pellets	Glaze	Thunder	Hail	Damaging Winds	Time of observation if different from above	RIVER STAGE CONDITION	GAGE READING AT ___ A.M.	TENDENCY	REMARKS (Special observations, etc.)
1	33	13	14	0	0	1.23											mostly sunny and windy
2	40	11	19	0	0	1.13											Clear
3	44	16	43	0	0	1.00											Cloudy
4	45	29	29	0.52	0	0											mostly clear
5	37	26	30	0	0	0											mostly clear
6	44	28	38	T	T	T											Overcast, cloudy, flurries + rain
7	42	28	28	1.45	1.75	0											rain
8	28	18	24	0.04	0	0											Sunny, clear
9	40	24	40	0	0	0											Mostly cloudy
10	48	31	32	0	0	0											mostly clear
11	39	26	27	0	0	0											partly cloudy
12	36	18	32	0	0	0											mostly clear
13	43	30	33	0	0	0											Clear
14	46	29	29	0	0	0											partly cloudy
15	29	13	14	0	0	0											partly cloudy
16	31	9	18	0	0	0											partly cloudy
17	33	16	28	0	0	0											partly cloudy
18	32	28	30	0.22	3.06	3.06											Overcast, snowy, windy
19	41	23	30	T	0.64	3.70											mostly clear
20	44	19	33	0	0	2.7											mostly clear
21	50	33	36	0	0	0											am variable clouds, pm rain
22	42	32	32	.18	0	0											[illegible] clouds, windy
23	45	23	23	0	0	0											Clear
24	37	18	31	0	0	0											mostly cloudy
25	40	24	29	0	0	0											partly cloudy
26	43	26	28	0	0	0											Clear
27	43	24	32	0	0	0											mostly clear
28	52	25	28	0	0	0											Clear
29	55	22	36	0	0	0											partly cloudy
30																	
31																	
SUM	41	22	SUM	2.41	5.45												

PRECIPITATION: Draw a straight line (——) through hours precipitation was observed, and a waved line (~~~~) through hours precipitation probably occurred unobserved. A.M. NOON P.M.

CHECK BAR (For wire-weight) NORMAL CK. BAR

READING | DATE

CONDITION OF RIVER AT GAGE

A. Obstructed by rough ice.
B. Frozen, but open at gage.
C. Upper surface of smooth ice.
D. Ice gorge above gage.
E. Ice gorge below gage.
F. Shore ice.
G. Floating ice.
H. Pool stage.

OBSERVER

SUPERVISING OFFICE WFO, TAUNTON

STATION INDEX NO. 19-2451-3

STATION (Climatological)	EAST WAREHAM	(River Station, if different)	MONTH	March	2004
STATE	MA	COUNTY	Plymouth	RIVER	
TIME (local) OF OBSERVATION RIVER	Midnight	TEMP.	MDMT	PRECIPITATION	9AM
STANDARD TIME IN USE					
TYPE OF RIVER GAGE		ELEVATION OF RIVER GAGE ZERO	Ft.	FLOOD STAGE	Ft.
NORMAL POOL STAGE	Ft.				

WS FORM B-91 (12-93)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE

RECORD OF RIVER AND CLIMATOLOGICAL OBSERVATIONS

DATE	TEMPERATURE F. 24 HRS. ENDING AT OBSERVATION MAX.	MIN.	AT OBSN.	PRECIPITATION 24-HR AMOUNTS Rain, melted snow, etc. (ins. and hundredths)	Snow, ice pellets, hail (ins. and tenths)	At Ob. Snow, ice pellets, hail, ice on ground (ins.)	WEATHER (Calendar Day) Fog	Ice Pellets	Glaze	Thunder	Hail	Damaging Winds	Time of observation if different from above	RIVER STAGE CONDITION	GAGE READING AT ___ A.M.	TENDENCY	REMARKS (Special observations, etc.)
1	55	28	37	0	0	0											Partly cloudy
2	50	36	48	0	0	0	X										Cloudy, overcast, rain, Fog PM
3	55	34	34	T	0	0											Clear
4	48	32	34	.03	0	0											Overcast, lt rain
5	46	32	39	T	0	0	X										overcast, pm shower
6	55	39	39	.40	0	0	X										Cloudy, rain
7	48	33	35	.04	0	0											Sunny
8	36	28	28	.0	0	1.5											overcast, Snow
9	36	24	24	.10	1.50	1.13											mostly cloudy
10	38	22	34	.0	0	0.43											mostly cloudy
11	40	27	27	.20	0.43	0.86											Snow, sleet, windy
12	48	26	32	0	0	0											Partly cloudy, poss. shower am, rain, snow showers
13	43	28	29	.05	0	0											mostly sunny
14	38	21	38	.0	0	0											AM sun - Thin overcast PM
15	55	36	36	.0	0	0											AM sunny -
16	38	26	30	0	0	0											mostly cloudy, lt snow
17	32	28	30	0.46	6.00	0.73											Cloudy, overcast, snow showers
18	33	23	26	0	1.50	3.6											mostly cloudy, poss. snow shower, lt snow
19	32	23	23	0.04	T	3.6									-		Snow, overcast
20	41	15	37	0	1.75												Cloudy Rain PM
21	50	31	31	0.58	0	0											Slow clearing + windy
22	34	22	23	0	0	0											Mostly clear
23	38	15	36	0	0	0											Clear
24	51	29	39	0	0	0											Clear
25	51	39	45	0	0	0											Overcast, lt rain
26	56	43	43	0.03	0	0											Mostly cloudy, clear partly pm
27	55	42	43	0.20	0	0											lt rain
28	44	33	33	0.08	0	0											Partly cloudy
29	41	32	33	0	0	0											Partly cloudy
30	44	32	38	0		0											Mostly cloudy
31	46	38	41	T	0	0	X										Cloudy, overcast lt rain overnight
SUM	44.4	29.6	SUM	8.21	11.18		Fog	Ice Pel.	Glaze	Thund.	Hail	Dam. Winds					

CHECK BAR (For wire-weight) NORMAL CK. BAR

READING	DATE

CONDITION OF RIVER AT GAGE

A. Obstructed by rough ice.
B. Frozen, but open at gage.
C. Upper surface of smooth ice.
D. Ice gorge above gage.
E. Ice gorge below gage.
F. Shore ice.
G. Floating ice.
H. Pool stage.

OBSERVER

SUPERVISING OFFICE: WFO, TAUNTON

STATION INDEX NO. 19-2451-3

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To Shem Stygar	From Deb Cannon
Co.	Co.
Dept.	Phone #
Fax # 413-545-2202	Fax #

WS FORM B-91 (12-93)

RECORD (

STATION (Climatological): EAST WAREHAM (River Station, if different)
MONTH: APRIL 2004
STATE: MA
COUNTY: Plymouth
RIVER
TIME (local) OF OBSERVATION RIVER: midnight
TEMP. MDMT
PRECIPITATION 9AM
STANDARD TIME IN USE: EST
TYPE OF RIVER GAGE
ELEVATION OF RIVER GAGE ZERO Ft.
FLOOD STAGE Ft.
NORMAL POOL STAGE Ft.

DATE	TEMPERATURE F. 24 HRS. ENDING AT OBSERVATION MAX.	MIN.	AT OBSN.	PRECIPITATION 24-HR AMOUNTS Rain, melted snow, etc. (ins. and hundredths)	Snow, ice pellets, (ins. and tenths)	At Ob. Snow, ice pellets, hail, ice on ground (ins.)	WEATHER (Calendar Day) Fog	Ice Pellets	Glaze	Thunder	Hail	Damaging Winds	Time of observation if different from above	CONDITION	GAGE READING AT ___ A.M.	TENDENCY	REMARKS (Special observations, etc.)
1	49	41	43	0.82	0	0											overcast, Rain
2	44	37	37	1.56													Cloudy
3	39	37	38	0													Cloudy [illegible] Showers
4	53	38	40	T													Rain, Snow [illegible]
5	44	30	30	~~.39~~	0.39												AM Snow Flurries, Mostly cloudy
6	52	29	33	0													Clear
7	53	31	31	0													Partly cloudy
8	55	29	40	0													Mostly clear
9	59	37	38	0													Partly Cloudy
10	58	29	36	0													Clear
11	49	34	43	0													overcast
12	49	40	41	T													Mostly cloudy
13	59	41	56	0.75													Overcast, rain pm windy
14	57	50	54	0.47			X										Overcast, Showers
15	54	40	45	0.26													Overcast, rain, windy
16	49	32	32	0													Partly cloudy
17	55	32	46	0													Partly Cloudy
18	60	42	47	0													Mostly clear
19	54	46	48	0													Partly Cloudy
20	65	40	40	0			X										overcast
21	58	35	53	.02													mostly cloudy, overcast showers
22	55	48	49	0													Clear, frost late pm
23	54	42	42	0													Clear AM, cloudy overcast/rain pm
24	66	39	46	0.29													Cloudy, rain AM
25	48	36	41	0													Clear
26	54	41	49	0.13													Cloudy rain am Mostly cloudy pm
27	60	43	43	0.43			X										Overcast rain
28	58	38	38	0.12													Mostly cloudy
29	60	36	50	0													Clear
30	60	48	51	0													Partly cloudy
31																	
SUM	1630	1141	SUM	5.53	0												

PRECIPITATION: Draw a straight line (——) through hours precipitation was observed, and a waved line (~~~~) through hours precipitation probably occurred unobserved.
A.M. 1 2 3 4 5 6 7 8 9 10 11 NOON 1 2 3 4 5 6 7 8 9 10 11 P.M.

CHECK BAR (For wire-weight) NORMAL CK. BAR
READING | DATE

CONDITION OF RIVER AT GAGE
A. Obstructed by rough ice.
B. Frozen, but open at gage.
C. Upper surface of smooth ice.
D. Ice gorge above gage.
E. Ice gorge below gage
F. Shore ice.
G. Floating ice.
H. Pool stage.

OBSERVER

SUPERVISING OFFICE: WFO, TAUNTON

STATION INDEX NO. 19-2451-3

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WS FORM B-91 (12-93)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE

RECORD OF RIVER AND CLIMATOLOGICAL OBSERVATIONS

STATION (Climatological)	East Wareham
(River Station, if different)	
MONTH	MAY 2004
STATE	MA
COUNTY	Plymouth
RIVER	
TIME (local) OF OBSERVATION RIVER	midnight
TEMP.	MD MT
PRECIPITATION	9AM
STANDARD TIME IN USE	EST
TYPE OF RIVER GAGE	
ELEVATION OF RIVER GAGE ZERO	Ft.
FLOOD STAGE	Ft.
NORMAL POOL STAGE	Ft.

Fax to: Shem Styqar

TEMPERATURE F. / PRECIPITATION / WEATHER (Calendar Day) / RIVER STAGE

Draw a straight line (——) through hours precipitation was observed, and a waved line (~~~~) through hours precipitation probably occurred unobserved.

Mark 'X' for all types occurring each day.

DATE	MAX. (24 hrs. ending at observation)	MIN.	AT OBSN.	Rain, melted snow, etc. (ins. and hundredths)	Snow, ice pellets, hail (ins. and tenths)	Snow, ice pellets, hail, ice on ground (ins.)	Fog	Ice Pellets	Glaze	Thunder	Hail	Damaging Winds	Time of observation if different from above	CONDITION	GAGE READING AT ___ A.M.	TENDENCY	REMARKS (Special observations, etc.)
1	64	50	53	0													mostly sunny
2	68	52	58	0													mostly Cloudy
3	58	51	54	0.31													Fog, Overcaste, Lt. Rain
4	59	40	40	0.49													mostly Sunny.
5	60	36	51	0													Clear, Sunny
6	67	44	52	T													mostly Clear
7	77	52	52	0													mostly Clear
8	58	42	47	0													Clear, Sunny
9	55	45	46	0													Rain
10	67	42	53	0.15													mostly Clear
11	79	53	56	0													mostly Clear
12	82	55	60	0													Clear
13	61	47	47	0			X										Cloudy overcast
14	66	47	55	0			X										Cloudy overcast
15	68	55	58	0													Clear, Sunny
16	72	50	50	0													Cloudy, lt mist
17	66	50	53	T													Cloudy, [illegible]
18	64	53	61	.05			X										Cloudy overcast, foggy
19	66	45	45	.03			X										Cloudy, overcast, lt/rain
20	73	42	52	0													Clear
21	69	52	58	0													Cloudy
22	62	48	48	0			X										Cloudy [illegible], Fog lt drizzle AM
23	76	48	51	.06													Cloudy [illegible], Cloudy AM, Cloudy [illegible]
24	64	50	50	.03													Cloudy, passing Shower PM
25	57	47	47	.02													Cloudy
26	55	47	50	0													Cloudy overcast, rain PM
27	63	50	54	0.53													Cloudy, Partly Cloudy PM
28	60	52	57	0.02													Cloudy, Rain
29	62	47	47	1.11													Clear, Sunny
30	70	46	51	0													Clear, Sunny
31	70	44	56	0													Mostly Sunny
SUM	2038	1482	SUM	2.80													

CHECK BAR (For wire-weight) NORMAL CK. BAR

READING	DATE

CONDITION OF RIVER AT GAGE

A. Obstructed by rough ice.
B. Frozen, but open at gage.
C. Upper surface of smooth ice.
D. Ice gorge above gage.
E. Ice gorge below gage
F. Shore ice.
G. Floating ice.
H. Pool stage.

OBSERVER

SUPERVISING OFFICE: WFO, TAUNTON

STATION INDEX NO.: 19-2451-3

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WS FORM B-91 (12-93)

RECORD O

STATION (Climatological): EAST WAREHAM (River Station, if different)
MONTH: June 2004
STATE: MA
COUNTY: Plymouth
RIVER:
TIME (local) OF OBSERVATION RIVER: midnight
TEMP. MD MT
PRECIPITATION 9AM
STANDARD TIME IN USE: E.S.T.
TYPE OF RIVER GAGE
ELEVATION OF RIVER GAGE ZERO Ft.
FLOOD STAGE Ft.
NORMAL POOL STAGE Ft.

Date	Temperature F. 24 hrs. ending at observation: Max.	Min.	At Obsn.	Precipitation 24-hr amounts: Rain, melted snow, etc. (ins. and hundredths)	Snow, ice pellets (ins. and tenths)	At Ob.: Snow, ice pellets, hail, ice on ground (ins.)	Weather: Fog	Thunder	Remarks (Special observations, etc.)
1	56	47	51	0.27				X	rain, Mostly Cloudy pm
2	67	50	59	0.14				X	Mostly Cloudy, Shower in evening
3	70	52	52	T					Partly cloudy, windy, Showers evening
4	70	48	54	0.31					Clear
5	70	50	51	0					high thin overcast
6	55	51	52	0					rain off/on all day
7	67	51	59	0.10					Cloudy, Overcast
8	80	56	67	0					Partly cloudy
9	78	61	68	0					Partly cloudy / hazy
10	70	53	53	0					mostly cloudy
11	70	46	50	0					mostly sunny
12	68	46	53	0					mostly sunny
13	70	46	58	0					mostly sunny
14	65	58	62	0					Cloudy overcast, [illegible] rain late aft
15	76	62	64	0.55					Cloudy, partly sunny [illegible]
16	82	61	66	0			X		Mostly Sunny
17	79	66	66	.05			X		partly cloudy
18	69	61	61	.10					Cloudy overcast, lt rain
19	80	61	62	.10					mostly cloudy, humid
20	70	55	55	0					Partly cloudy, dry
21	74	49	61	0					mostly clear
22	69	61	66	0					Cloudy overcast, showers afternoon
23	80	59	59	.18					Partly cloudy
24	78	54	63	0					mostly clear
25	73	62	65	0					mostly cloudy
26	77	59	59	0					Cloudy
27	76	54	61	0					Clear
28	77	55	63	0					partly cloudy
29	73	60	61	.05					partly cloudy
30	82	61	65	0					Clear
31									
Sum	2171	1655	SUM	1.65					

PRECIPITATION: Draw a straight line (——) through hours precipitation was observed, and a wavy line (∼∼∼) through hours precipitation probably occurred unobserved. A.M. NOON P.M.

WEATHER (Calendar Day): Mark 'X' for all types occurring each day. Fog | Ice Pellets | Glaze | Thunder | Hail | Damaging Winds | Time of observation if different from above | CONDITION | GAGE READING AT ___ A.M. | TENDENCY

CHECK BAR (For wire-weight) NORMAL CK. BAR
READING: High - 72.4; Low - 55.2; Avg - 64
DATE
OBSERVER

CONDITION OF RIVER AT GAGE
A. Obstructed by rough ice.
B. Frozen, but open at gage.
C. Upper surface of smooth ice.
D. Ice gorge above gage.
E. Ice gorge below gage.
F. Shore ice.
G. Floating ice.
H. Pool stage.

SUPERVISING OFFICE: WFO, TAUNTON

STATION INDEX NO. 19-2451-3

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WS FORM B-91 (12-93)

RECORD OF

STATION (Climatological): EAST WAREHAM (River Station, if different)
MONTH: JULY 2004
STATE: MA
COUNTY: Plymouth
RIVER
TIME (local) OF OBSERVATION RIVER: midnight
TEMP.: MD MT
PRECIPITATION: 9AM
STANDARD TIME IN USE: E.S.T
TYPE OF RIVER GAGE
ELEVATION OF RIVER GAGE ZERO Ft.
FLOOD STAGE Ft.
NORMAL POOL STAGE Ft.

DATE	TEMPERATURE F. 24 HRS. ENDING AT OBSERVATION MAX.	MIN.	AT OBSN.	PRECIPITATION 24-HR AMOUNTS Rain, melted snow, etc. (Ins. and hundredths)	Snow, ice pellets, hail (Ins. and tenths)	At Ob. Snow, ice pellets, hail, ice on ground (Ins.)	WEATHER (Calendar Day) Fog	Ice Pellets	Glaze	Thunder	Hail	Damaging Winds	Time of observation if different from above	CONDITION	GAGE READING AT ___ A.M.	TENDENCY	REMARKS (Special observations, etc.)
1	77	64	67	0													Mostly clear
2	73	62	65	0.53			X			X							Early AM Thunder Storm, Cloudy overcast, rain
3	77	59	65	0													Clear
4	82	59	65	0													Clear
5	73	65	69	0													Cloudy, Showers
6	80	64	64	0.57													Mostly cloudy, Cloudy overcast pm rain pm
7	79	64	65	.08													Mostly Clear
8	76	64	70	0													Cloudy, overcast, Lt mist pm
9	79	65	65	0													Partly cloudy
10	79	60	65	0													Partly cloudy
11	73	57	57	0													Clear
12	74	55	65	0													Mostly cloudy
13	66	62	64	0.11			X										Cloudy overcast rain
14	65	59	61	0.56			X										heavy mist
15	75	61	67	.01													Cloudy, Partly Cloudy pm
16	77	66	67	0													Partly Cloudy
17	82	65	70	0													Sunny
18	81	68	69	0			X										Partly cloudy, [illegible] clouds
19	77	66	70	.10													Cloudy, overcast heavy mist
20	81	68	69	0													Partly cloudy
21	86	64	69	0			X										Mostly cloudy
22	82	68	70	0													Cloudy, [illegible] Hazy
23	81	68	72	0													Cloudy, Hazy
24	74	61	61	0													Mostly cloudy
25	67	57	57	0													Cloudy overcast
26	73	55	57	.02													Partly cloudy
27	75	55	66	0						X							Partly cloudy
28	71	62	63	0.46			X										Mostly cloudy
29	78	63	67	0.29													Cloudy
30	82	64	72	0													Mostly clear
31	82	72	73	0													Mostly Cloudy, Partly clear
SUM	2377	1942	SUM	2.73													

PRECIPITATION: Draw a straight line (——) through hours precipitation was observed, and a wavy line (~~~~) through hours precipitation probably occurred unobserved. A.M. NOON P.M.

CHECK BAR (For wire-weight) NORMAL CK. BAR
READING | DATE

OBSERVER

CONDITION OF RIVER AT GAGE
A. Obstructed by rough ice.
B. Frozen, but open at gage.
C. Upper surface of smooth ice.
D. Ice gorge above gage.
E. Ice gorge below gage.
F. Shore ice.
G. Floating ice.
H. Pool stage.

SUPERVISING OFFICE: WFO, TAUNTON

STATION INDEX NO.: 19-2451-3

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STATION (Climatological) EAST WAREHAM (River Station, if different)
MONTH Aug 2004

STATE MA COUNTY Plymouth RIVER

TIME (local) OF OBSERVATION RIVER Midnight TEMP. MD/MT PRECIPITATION 9 Am STANDARD TIME IN USE E.S.T

TYPE OF RIVER GAGE ELEVATION OF RIVER GAGE ZERO Ft. FLOOD STAGE Ft. NORMAL POOL STAGE Ft.

WS FORM B-91 (12-93)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE

RECORD OF RIVER AND CLIMATOLOGICAL OBSERVATIONS

TEMPERATURE F. — PRECIPITATION — WEATHER (Calendar Day) — RIVER STAGE

24-HR AMOUNTS. At Ob. Draw a straight line (——) through hours precipitation was observed, and a waved line (~~~) through hours precipitation probably occurred unobserved. A.M. NOON P.M.

Mark 'X' for all types occurring each day.

DATE	MAX. (24 hrs. ending at observation)	MIN.	AT OBSN.	Rain, melted snow, etc. (ins. and hundredths)	Snow, ice pellets (ins. and tenths)	Snow, ice pellets, hail, ice on ground (ins.)	Fog	Ice Pellets	Glaze	Thunder	Hail	Damaging Winds	Time of observation if different from above	CONDITION	GAGE READING AT ___ A.M.	TENDENCY	REMARKS (Special observations, etc.)
1	81	71		0													mostly cloudy Lt rain Humid
2	82	70		0.05													mostly cloudy, Humid
3	80	69		0													Cloudy, Humid
4	79	68		0			X										Cloudy, humid
5	69	60		0.50													Cloudy, intermittent Showers
6	64	58		0.07													Cloudy
7	73	52		0													Cloudy
8	76	55		0													mostly Clear
9	82	58		0													Mostly Clear
10	80	63		0			X										mostly clear, humid + haze
11	79	69		0													Cloudy, NUcast, humid
12	82	70		0													mostly [illegible], humid
13	79	72		.11													Cloudy very humid Rain PM
14	81	69		1.40													Mostly Sunny + humid
15	71	63		2.63													T.S. Charlie, Cloudy, Rain, Wind
16	64	62		.16													Cloudy Lt rain, drizzle
17	72	60		.08													Cloudy, Lt rain, SUN PM
18	74	59		0													mostly Clear
19	75	70		0													Partly cloudy
20	77	69		0			X										Cloudy, overcast, humid
21	74	63		0													overcast rain
22	70	54		0.79													mostly Sunny Clear
23	75	51		0													mostly Clear
24	69	52		0													Partly Cloudy
25	76	48		0													Mostly Clear
26	76	48		0													mostly Clear
27	78	62		0													Mostly Clear
28	82	69		0													mostly Clear, humid
29	77	70		0													Clear, Sunny
30	86	72		0						X							Cloudy, overcast, humid [illegible]
31	72	63		.71						X							rain, overcast, [illegible] remnants of tropical Storm
SUM	2360	1939	SUM	6.48													

CHECK BAR (For wire-weight) NORMAL CK. BAR

READING DATE

CONDITION OF RIVER AT GAGE

A. Obstructed by rough ice.
B. Frozen, but open at gage.
C. Upper surface of smooth ice.
D. Ice gorge above gage.
E. Ice gorge below gage
F. Shore ice.
G. Floating ice.
H. Pool stage.

OBSERVER

SUPERVISING OFFICE WFO, TAUNTON

STATION INDEX NO. 19-2451-3

APPENDIX B
November 2002 – September 2004 Ion Data

Plymouth Well Sampling Summary

Updated 38519.0 SVK

NM = not measured BDL = below detection limit
NS = not sampled DND = did not detect
If listed as 0, below 1, rounded, but above detection limit

Sample Date	Sample ID	Borehole ID	pH	DO (mg/L)	Measured Conductivity (mS/cm)	Calc Conductivity (mS/cm)	Net Charge	HCO_3^- Conc. (mg/L)	Acetate Conc. (mg/L)	Cl^- Conc. (mg/L)	SO_4^{-2} Conc. (mg/L)	Na^+ Conc. (mg/L)	K^+ Conc. (mg/L)	Ca^{+2} Conc. (mg/L)	Mg^{+2} Conc. (mg/L)	Fe^{+2} Conc. (mg/L)
11 12 2002	13	AE	6.3	0.80	70	77	-16.9%	40.4	1.0	4.1	5.0	11.5	0.6	0.3	1.5	0.8
11 12 2002	14	AF	6.5	0.00	85	95	0.0%	37.9	0.8	6.5	7.8	11.1	1.2	1.9	4.5	2.5
11 12 2002	15	AG	6.5	0.74	312	358	3.2%	104.9	1.1	54.8	12.4	35.2	2.0	9.8	20.2	7.6
11 12 2002	16	AH	6.7	1.17	340	403	0.3%	134.7	1.7	58.2	15.3	48.4	2.1	9.0	19.7	7.2
11 12 2002	62	AK	6.3	2.02	154	169	-1.6%	39.3	0.0	24.0	14.4	19.0	0.7	4.3	6.2	2.3
11 12 2002	29	AL	6.8	0.00	101	123	-7.9%	56.0	1.1	6.1	11.3	12.5	0.6	3.0	5.3	2.8
11 12 2002	39	AS	6.7	0.00	314	365	0.3%	118.7	1.2	50.8	16.7	42.9	2.0	11.5	15.5	3.6
11 12 2002	57	AT	6.4	2.7*	183	215	6.5%	61.7	0.0	23.6	15.5	24.3	1.3	6.1	10.7	0.3
11 12 2002	69	AU	5.9	0.04	68	70	14.5%	3.6	0.0	12.3	5.4	12.2	1.9	0.4	1.1	0.0
11 12 2002	30	AV	6.2	3.59	219	233	10.4%	14.7	0.9	56.1	3.2	21.9	1.8	4.9	12.9	0.0
11 12 2002	97	AW	6.3	0.00	72	69	2.7%	8.0	0.0	12.3	5.1	9.6	1.1	0.6	1.3	0.0
11 12 2002	31	AX	6.1	3.21	70	72	-0.3%	8.5	1.2	12.9	5.5	9.5	1.0	0.7	2.0	0.0
11 12 2002	32	AY	6.2	6.79	133	142	14.2%	18.9	1.0	25.5	4.2	14.9	0.8	3.3	8.2	0.0
11 12 2002	33	AY	6.2	6.79	135	148	12.8%	20.8	0.8	27.0	4.1	14.7	0.8	3.5	8.8	0.0
11 12 2002	58	AZ	5.8	5.18	68	63	8.2%	1.7	0.0	10.1	8.5	10.4	1.3	0.6	0.8	0.0
11 12 2002	99	BA	5.4	0.10	130	124	9.7%	0.0	0.0	27.4	9.0	21.7	1.6	0.8	1.7	0.0
11 12 2002	100	BB	5.6	1.30	73	73	14.4%	1.2	0.0	13.2	5.5	10.8	1.8	0.5	1.6	0.0
11 12 2002	52	BC	5.6	3.16	94	90	6.5%	1.8	0.0	18.9	7.5	16.3	1.2	0.4	0.8	0.0
11 12 2002	63	BCa	6.7	0.00	95	114	-8.4%	45.6	0.0	6.2	14.0	11.4	0.6	3.2	4.3	1.7
11 12 2002	64	BCb	7.0	0.00	117	136	-5.7%	56.8	0.0	11.3	9.7	17.5	0.7	2.2	4.9	1.0
11 12 2002	65	BCc	6.9	0.00	155	178	1.0%	54.8	0.0	15.5	18.9	18.7	0.6	5.2	8.2	2.6
11 12 2002	66	BCc	6.9	0.00	155	183	-0.5%	60.6	0.0	15.6	19.0	18.6	0.9	6.0	8.1	2.5
11 12 2002	67	BCd	6.8	0.00	169	163	-4.1%	58.7	0.0	25.0	5.4	18.2	0.8	4.8	5.7	8.5
11 12 2002	68	BCe	6.3	3.47	91	87	4.9%	12.2	0.0	15.0	5.5	12.5	1.7	1.0	2.1	1.4
11 12 2002	69	BCf	6.8	0.00	127	140	-1.6%	49.3	0.0	13.4	10.2	10.5	0.6	5.2	7.6	2.8
11 12 2002	70	BCg	7.0	0.00	231	297	2.7%	120.2	0.0	26.8	15.4	25.2	1.0	10.1	19.4	2.3
11 12 2002	73	BCj	5.9	5.28	107	102	14.0%	4.7	0.0	21.5	4.0	13.7	2.0	1.5	3.6	0.6
11 12 2002	53	BD	6.7	0.00	173	205	7.7%	54.8	0.0	21.2	17.5	17.0	0.6	7.6	12.6	1.3
11 12 2002	54	BE	5.9	7.22	114	109	1.7%	11.4	0.0	23.9	4.1	13.6	1.5	1.6	3.3	0.0
11 12 2002	55	BE	5.9	7.22	114	105	7.7%	6.4	0.0	23.4	3.9	13.7	1.6	2.2	3.4	0.0
11 12 2002	93	BG	6.6	0.03	279	321	7.2%	101.3	0.0	31.4	25.6	35.2	1.2	9.6	19.2	5.3
11 12 2002	94	BH	6.4	0.00	67	70	-12.7%	16.3	0.0	11.3	6.0	9.7	0.9	0.1	1.2	0.0
11 12 2002	92	BI	5.9	6.16	165	163	19.1%	2.5	0.0	36.7	5.0	25.2	1.7	2.2	6.0	0.0
11 12 2002	34	BJ	6.4	2.41	288	330	14.6%	41.4	1.0	70.9	2.8	30.2	1.2	9.7	22.1	0.8
11 12 2002	37	BK	5.9	0.58	117	113	11.1%	3.1	0.0	26.5	3.5	15.6	1.4	1.6	3.6	0.0
11 12 2002	35	BL	6.3	3.39	109	113	3.3%	22.4	1.2	18.2	5.7	16.7	0.8	1.0	3.6	0.0
11 12 2002	42	BM	5.6	4.46	140	137	3.3%	6.4	0.0	33.0	5.7	22.2	1.2	0.7	2.5	0.0
11 12 2002	43	BMa	6.5	0.55	243	249	-2.1%	75.3	1.0	35.6	13.6	29.6	0.8	3.2	11.7	9.4
11 12 2002	44	BMa	6.5	0.55	243	260	2.1%	76.7	0.7	35.7	13.8	28.8	0.9	4.9	14.0	9.3
11 12 2002	45	BMb	6.7	0.15	151	159	-11.9%	69.8	0.0	16.7	8.9	17.7	0.9	1.3	6.8	9.1
11 12 2002	46	BMc	6.2	4.04	100	101	0.3%	16.9	0.0	18.5	5.1	13.6	1.6	0.9	2.9	0.2
11 12 2002	47	BMd	6.1	6.50	92	94	-6.4%	20.7	0.0	15.9	6.0	13.3	1.3	0.8	1.9	0.0
11 12 2002	48	BMe	5.8	9.91	83	75	4.9%	4.8	0.0	15.5	4.9	12.0	1.0	0.5	1.3	0.0
11 12 2002	49	BMf	5.5	8.01	59	83	6.5%	4.2	0.0	18.0	4.2	11.3	1.1	0.7	2.4	0.0
11 12 2002	50	BMg	5.5	8.01	124	120	11.8%	2.5	0.0	27.8	4.5	17.2	1.4	1.6	3.6	0.1
11 12 2002	51	BMh	5.4	8.11	119	109	8.0%	4.2	0.0	24.6	4.9	16.3	1.3	1.0	2.7	0.0
11 12 2002	40	BN	6.6	2.39	117	134	-10.1%	43.9	0.7	19.2	7.2	17.2	1.1	1.7	3.6	1.6
11 12 2002	28	BO	5.8	0.00	75	81	-2.4%	12.1	1.0	15.2	4.4	10.8	1.3	0.5	2.1	0.0
11 12 2002	19	BOa	6.7	0.23	333	366	-2.2%	139.1	1.4	48.9	12.3	49.9	1.5	6.8	14.8	5.5
11 12 2002	20	BOb	6.9	0.28	334	283	-10.5%	120.9	1.2	38.0	7.2	35.6	1.2	4.3	9.9	4.6
11 12 2002	21	BOc	6.9	0.27	230	258	-3.2%	78.4	1.2	41.6	8.3	26.4	1.3	6.6	11.9	8.2
11 12 2002	22	BOc	6.9	0.27	230	260	-4.5%	84.0	1.3	41.4	7.5	26.4	1.5	6.3	12.0	8.2
11 12 2002	23	BOd	6.9	0.26	288	289	1.0%	67.2	1.4	55.2	5.9	30.0	1.5	7.5	13.9	12.2
11 12 2002	24	BOe	6.9	0.34	212	214	-9.0%	74.5	1.3	31.4	9.1	25.7	1.0	3.9	7.3	11.7
11 12 2002	25	BOf	6.9	0.02	177	183	-13.5%	65.9	0.3	29.2	6.5	19.9	1.1	3.2	6.1	11.8
11 12 2002	26	BOg	6.6	0.90	108	136	-15.3%	49.5	1.0	15.4	7.6	19.3	2.6	0.6	1.3	0.0
11 12 2002	27	BOh	6.0	7.69	108	103	2.4%	19.3	0.9	16.5	6.1	13.7	1.5	1.3	3.3	0.2
11 12 2002	17	BP	6.7	0.03	260	271	-4.5%	66.8	0.3	53.4	7.4	28.1	1.2	5.7	11.7	12.9
11 12 2002	18	BQ	6.4	5.33	61	63	-20.0%	21.2	0.0	10.3	5.5	8.4	0.8	0.4	1.1	0.0
11 12 2002	41	BR	5.9	0.00	85	86	4.7%	6.8	0.0	18.4	4.0	11.6	1.3	1.0	2.4	0.0
11 12 2002	95	BS	6.1	0.00	65	67	-0.6%	11.8	0.0	10.6	5.3	8.5	1.0	0.9	1.9	0.0
11 12 2002	74	BTa	6.7	0.00	219	269	4.9%	119.4	0.3	17.9	13.2	30.2	1.5	9.9	14.3	3.5
11 12 2002	75	BTb	6.9	0.00	280	349	0.8%	147.1	0.0	35.4	14.4	33.2	1.0	10.8	21.4	4.9
11 12 2002	76	BTc	7.0	0.00	317	355	2.1%	131.8	0.0	55.4	6.4	36.5	1.4	11.6	23.1	5.4
11 12 2002	77	BTd	7.1	0.00	237	305	0.8%	130.1	0.3	31.3	10.0	24.2	1.2	9.9	20.6	4.9
11 12 2002	78	BTd	7.1	0.00	237	302	1.6%	123.6	0.4	32.0	10.1	35.9	1.4	9.6	19.5	4.9
11 12 2002	79	BTe	7.1	0.00	242	330	4.4%	138.2	0.2	30.1	12.8	27.9	1.4	10.3	23.5	5.7
11 12 2002	80	BTf	7.2	0.00	234	295	2.5%	110.0	0.0	35.3	7.9	31.9	0.8	9.1	21.2	4.3
11 12 2002	81	BTg	7.2	0.00	184	232	-0.4%	95.7	0.0	24.1	7.8	20.8	0.7	6.8	13.9	3.1
11 12 2002	82	BTh	7.2	0.00	157	192	-3.2%	89.6	0.0	16.7	6.3	16.3	0.8	5.3	11.5	3.7
11 12 2002	83	BTi	6.2	0.43	101	93	6.3%	6.9	0.0	21.5	4.0	13.8	1.3	0.7	2.9	0.0
11 12 2002	84	BTj	6.7	0.00	172	169	9.0%	30.1	0.0	39.2	5.3	21.3	0.7	3.2	7.8	8.0
11 12 2002	85	BTk	6.5	0.00	144	158	9.1%	32.1	0.0	16.5	17.8	19.0	2.1	3.7	6.9	5.2
11 12 2002	88	BU	6.7	0.00	150	179	3.4%	62.1	0.0	21.6	5.4	15.3	0.9	5.5	10.9	0.0
11 12 2002	89	BU	6.7	0.00	150	178	4.9%	59.5	0.0	21.6	5.6	14.6	1.0	6.0	11.1	0.0
11 12 2002	58	BX	6.7	0.00	110	116	-14.7%	57.5	0.0	10.8	4.4	10.2	1.5	4.5	3.5	3.4
11 12 2002	91	BY	6.6	0.00	78	78	6.1%	9.3	0.0	14.1	4.8	12.6	0.9	0.8	1.5	0.0
11 12 2002	90	BZ	6.8	0.00	418	472	5.2%	131.2	0.0	82.0	9.8	72.7	1.7	8.2	18.9	9.9
11 12 2002	36	CA	6.4	1.03	210	223	6.5%	48.1	1.2	33.1	14.0	31.6	1.3	3.4	9.0	0.0
11 12 2002	85	CB	6.7	0.10	137	148	1.7%	43.2	0.0	15.8	9.5	22.3	1.5	2.3	4.4	1.1
11 12 2002	37	CC	6.1	1.25	80	82	5.9%	7.2	1.0	15.8	4.9	12.9	1.1	0.8	1.7	0.0
11 12 2002	38	CD	6.8	0.00	237	273	-8.7%	135.3	0.9	25.3	10.2	25.4	0.9	5.9	13.4	10.6
11 12 2002	59	ST	5.9	3.29	189	197	17.5%	10.2	0.0	42.6	5.4	22.6	2.5	4.2	10.5	1.0
11 12 2002	11	UB101	5.9	11.59	33	51	2.8%	2.6	1.1	8.3	6.0	7.0	0.9	0.7	1.0	0.0

Plymouth Well Sampling Summary

Updated 38519.0 SVK

NM = not measured
NS = not sampled
BDL = below detection limit
DND = did not detect
if listed as 0: below 1, rounded, but above detection limit

Sample Date	Sample ID	Borehole ID	pH	DO (mg/L)	Measured Conductivity (mS/cm)	Calc Conductivity (mS/cm)	Net Charge	HCO_3^- Conc. (mg/L)	Acetate Conc. (mg/L)	Cl^- Conc. (mg/L)	SO_4^{-2} Conc. (mg/L)	Na^+ Conc. (mg/L)	K^+ Conc. (mg/L)	Ca^{+2} Conc. (mg/L)	Mg^{+2} Conc. (mg/L)	Fe^{+2} Conc. (mg/L)
11 12 2002	12	UB102	5.6	11.54	52	51	1.5%	3.4	1.0	8.4	5.7	7.3	1.0	0.5	0.9	0.0
11 12 2002	7	UB202	5.3	9.97	111	106	6.5%	1.0	0.7	23.8	7.3	18.9	1.1	0.6	1.1	0.0
11 12 2002	5	UB203	5.9	8.71	37	58	-3.0%	2.6	0.8	9.5	8.3	7.8	0.9	0.5	1.0	0.0
11 12 2002	8	UB204	5.5	8.01	61	56	6.6%	2.7	0.7	9.9	5.3	8.5	0.9	0.4	1.1	0.0
11 12 2002	6	UB205	5.6	8.36	89	81	13.1%	1.6	0.7	15.5	6.0	11.2	1.0	1.5	2.4	0.0
11 12 2002	9	UC102	5.7	10.74	53	45	-5.2%	4.8	0.8	6.5	7.2	5.8	1.8	0.5	0.7	0.0
11 12 2002	10	UC102	5.7	10.74	53	47	-0.2%	3.4	0.8	6.5	6.8	4.8	1.9	0.7	1.2	0.0
11 12 2002	1	UC202	6.7	11.61	110	129	-20.8%	19.4	0.0	16.0	27.8	19.0	1.1	0.3	0.2	0.0
11 12 2002	2	UC203	6.1	10.70	76	74	-5.9%	12.0	0.6	11.3	8.0	10.9	3.1	0.2	0.5	0.0
11 12 2002	3	UC204	5.8	11.02	76	93	-17.6%	8.8	1.1	9.3	23.0	9.1	4.1	0.6	1.2	0.0
11 12 2002	4	UC205	5.6	6.05	106	106	7.9%	4.7	0.8	14.1	16.4	9.5	5.2	1.9	4.0	0.0
11 12 2002	95	West Weir	6.7	0.09	133	135	-4.7%	41.4	0.0	15.3	10.4	16.9	2.0	5.2	2.3	0.1
12 19 2002	101	AB	6.2	9.84	114	104	8.0%	3.2	1.5	12.7	19.0	14.2	0.9	1.0	3.5	1.1
12 19 2002	102	AC	6.5	10.65	91	84	9.5%	9.9	BDL	12.7	7.5	11.4	0.6	0.9	3.3	0.2
12 19 2002	103	AD	6.1	9.49	605	648	20.1%	11.8	1.5	171.5	2.6	76.0	1.0	16.9	42.6	0.3
12 19 2002	34	AE	6.7	5.79	76	102	41.8%	13.8	0.0	8.9	4.0	23.1	7.9	0.9	1.3	0.0
12 19 2002	38	AF	6.8	7.39	71	61	10.4%	14.4	0.0	5.1	6.4	7.9	0.9	1.1	2.5	1.0
12 19 2002	35	AG	6.3	2.07	165	182	30.2%	25.5	0.0	19.0	12.7	25.9	6.0	4.3	9.4	2.3
12 19 2002	36	AH	6.8	0.95	101	95	17.0%	22.6	0.0	6.9	9.5	10.9	0.9	2.2	5.8	0.4
12 19 2002	92	AI	6.4	6.50	85	81	3.3%	12.6	1.9	11.9	6.9	10.4	0.5	0.8	3.1	0.6
12 19 2002	93	AJ	6.4	8.49	114	106	15.9%	13.2	1.7	16.2	5.7	13.9	1.5	1.8	4.8	2.0
12 19 2002	37	AK	6.2	9.55	79	76	-1.5%	7.9	0.0	6.4	16.6	5.0	0.6	3.9	2.5	0.1
12 19 2002	39	AL	6.5	1.72	585	567	25.1%	5.7	0.0	139.2	5.7	52.9	1.3	30.5	37.1	5.5
12 19 2002	94	AN	6.6	9.85	101	89	10.2%	13.5	1.6	12.0	7.4	14.9	0.6	1.0	2.4	0.2
12 19 2002	95	AO	6.2	8.33	111	108	16.2%	10.6	1.8	14.7	10.1	14.9	1.1	1.5	4.8	0.7
12 19 2002	95	AP	6.6	4.95	169	175	17.5%	35.3	1.6	21.0	10.0	16.9	0.5	4.7	12.6	3.6
12 19 2002	80	AQ	6.1	4.26	85	76	6.3%	11.6	BDL	11.3	7.0	9.1	0.4	1.2	3.5	0.9
12 19 2002	81	AR	5.7	9.44	100	88	10.8%	5.2	0.0	17.7	4.8	9.8	0.7	2.5	3.4	1.0
12 19 2002	29	AS	6.1	1.50	1632	1403	8.0%	16.6	BDL	456.6	8.8	264.8	5.2	29.3	34.8	6.4
12 19 2002	30	AT	6.7	2.95	2206	1893	8.3%	58.2	0.0	620.4	14.0	415.7	2.3	30.5	30.3	1.1
12 19 2002	97	AU	6.1	1.60	82	72	6.3%	7.8	1.6	12.2	4.9	12.1	1.5	0.4	1.2	0.0
12 19 2002	99	AV	6.5	2.68	189	137	12.3%	26.1	BDL	34.0	7.2	27.4	1.3	2.4	7.7	0.3
12 19 2002	100	AV	6.5	2.68	139	135	11.0%	27.8	1.6	32.9	7.3	26.9	1.4	2.7	7.4	0.1
12 19 2001	112	AW	6.3	1.05	115	71	3.4%	7.0	1.7	12.4	5.4	9.7	1.2	0.7	2.0	0.0
12 19 2002	104	AX	6.2	6.18	77	65	11.1%	4.6	1.3	10.5	5.7	9.7	1.0	0.6	2.0	0.0
12 19 2002	109	AY	6.3	7.81	146	144	18.6%	23.1	1.3	21.0	5.8	17.1	1.0	2.5	9.0	0.0
12 19 2002	110	AY	6.8	7.81	145	146	19.2%	23.5	1.7	21.2	5.8	16.3	0.9	2.4	9.9	0.0
12 19 2002	113	AZ	5.8	7.10	69	69	13.9%	2.2	1.7	10.1	7.9	9.7	1.2	0.8	2.3	0.1
12 19 2002	114	BA	5.7	9.10	85	75	-4.9%	1.2	2.7	15.8	7.4	9.3	1.1	0.4	1.9	0.0
12 19 2002	115	BB	5.6	0.60	82	75	11.0%	2.1	1.4	14.8	5.0	12.9	1.6	0.5	1.1	0.1
12 19 2002	88	BC	6.3	4.37	82	75	7.0%	5.4	0.0	13.1	7.0	11.2	0.9	0.4	2.0	0.0
12 19 2002	89	BC	6.3	4.37	82	72	3.6%	4.0	0.9	13.0	7.9	10.1	0.8	0.4	1.9	0.0
12 19 2002	51	BCa	7.6	1.24	95	82	11.5%	15.9	BDL	3.9	13.8	7.6	0.5	2.9	4.3	1.8
12 19 2002	52	BCb	7.6	1.34	88	78	10.7%	21.9	BDL	4.2	8.8	8.3	0.5	1.9	4.4	0.9
12 19 2002	53	BCc	7.5	1.72	79	72	9.0%	14.4	BDL	3.5	12.5	7.7	0.5	2.0	3.4	1.7
12 19 2002	54	BCd	7.1	0.66	233	192	0.4%	5.6	BDL	48.0	9.9	13.7	1.0	6.6	8.8	16.1
12 19 2002	55	BCd	7.1	0.65	223	187	-1.4%	0.5	BDL	49.1	10.2	12.5	0.8	6.7	8.1	15.9
12 19 2002	56	BCe	7.1	0.62	88	75	2.4%	7.5	BDL	7.4	14.6	12.1	1.2	0.2	1.3	0.0
12 19 2002	57	BCf	7.0	0.86	113	166	14.5%	23.1	BDL	8.5	11.1	9.6	0.5	3.9	6.4	2.7
12 19 2002	58	BCg	7.3	1.52	114	135	24.1%	32.1	BDL	8.2	14.7	15.2	1.1	2.9	7.8	0.5
12 19 2002	59	BCh	7.2	1.71	118	114	19.1%	23.7	BDL	8.5	11.9	11.5	0.7	3.2	7.5	0.7
12 19 2002	60	BCi	6.7	0.68	574	511	-4.6%	3.9	BDL	163.1	8.2	31.9	1.8	15.5	26.8	53.7
12 19 2002	61	BCj	6.4	0.98	116	114	19.8%	9.9	0.0	16.8	9.1	17.7	1.7	3.2	3.2	0.0
12 19 2002	90	BD	7.0	0.91	111	132	33.2%	22.5	0.0	8.0	12.7	12.8	0.7	5.1	10.7	0.9
12 19 2002	74	BE	6.4	2.79	107	115	32.4%	6.9	1.2	13.0	10.9	29.9	1.1	0.6	0.9	0.0
12 19 2002	91	BF	6.2	3.05	135	118	14.4%	4.6	1.6	24.6	4.9	16.8	1.4	1.4	4.4	0.0
12 19 2002	75	BG	6.7	4.55	256	248	18.1%	47.8	BDL	32.6	14.3	30.8	1.1	6.2	14.9	4.3
12 19 2002	76	BH	6.2	0.60	76	74	18.0%	5.3	BDL	11.8	5.6	14.0	2.0	0.5	1.1	0.0
12 19 2002	77	BH	6.2	0.60	76	66	8.7%	4.8	BDL	11.6	5.2	7.9	0.9	0.9	2.5	0.0
12 19 2002	78	BI	6.0	6.12	151	129	14.2%	4.4	BDL	29.0	4.0	19.3	1.5	1.8	4.1	0.0
12 19 2002	105	BJ	6.6	11.04	193	184	13.5%	35.1	1.7	29.7	4.5	22.2	0.9	3.4	10.6	0.9
12 19 2002	79	BK	6.0	1.25	79	75	6.8%	7.7	BDL	13.3	5.2	10.2	1.0	0.7	2.4	0.0
12 19 2001	111	BL	6.5	5.40	149	137	7.4%	13.9	2.1	25.0	9.3	22.5	0.8	0.9	3.7	0.0
12 19 2002	16	BM	5.8	5.00	118	108	10.3%	2.7	0.0	23.5	6.4	22.5	1.2	0.2	0.2	0.1
12 19 2002	17	BMa	6.5	0.17	1439	1203	7.9%	35.4	0.0	373.0	9.7	262.6	1.5	13.2	14.0	3.1
12 19 2002	18	BMb	6.4	0.16	2490	2338	24.5%	13.8	0.0	723.0	7.9	643.6	5.2	46.7	45.6	14.5
12 19 2002	19	BMc	6.4	0.20	2003	2415	0.1%	24.2	0.0	905.8	8.9	519.7	4.7	37.0	19.5	51.2
12 19 2002	20	BMd	6.0	0.20	987	887	10.5%	9.4	0.0	264.2	10.5	133.2	4.0	22.1	32.5	0.1
12 19 2002	21	BMe	6.0	0.77	107	88	4.0%	6.0	0.0	17.9	6.2	14.3	1.2	0.8	1.3	0.0
12 19 2002	22	BMe	6.0	0.77	107	89	0.3%	7.2	0.0	18.2	6.4	13.0	1.0	0.9	1.6	0.0
12 19 2002	33	BMf	5.7	10.16	107	93	12.0%	3.4	0.0	20.4	3.7	13.3	1.4	1.0	2.9	0.0
12 19 2002	24	BMg	5.6	9.00	133	108	14.0%	2.5	0.0	25.0	2.9	16.8	1.9	1.2	2.8	0.0
12 19 2002	25	BMh	5.4	7.40	155	134	15.6%	2.8	0.0	30.4	4.4	20.0	1.8	1.9	4.3	0.4
12 19 2002	26	BN	6.1	0.16	2542	2134	5.0%	11.5	0.0	761.2	10.0	435.8	5.5	27.3	43.3	15.5
12 19 2002	40	BO	5.6	5.50	245	253	17.8%	1.5	0.0	63.5	3.3	32.4	2.1	5.7	16.9	0.0
12 19 2002	46	BOa	6.9	0.55	231	231	16.7%	58.3	0.0	24.1	14.4	23.2	1.3	7.4	14.7	5.3
12 19 2002	41	BOb	6.7	0.44	307	299	18.2%	73.0	0.0	33.3	18.9	42.0	1.4	7.1	17.0	6.2
12 19 2002	42	BOc	6.7	0.25	444	420	13.8%	86.0	0.0	68.6	16.2	54.6	2.1	11.2	22.8	15.7
12 19 2002	43	BOd	6.7	0.24	393	325	8.1%	58.4	0.0	57.5	16.3	46.4	2.1	6.3	12.5	22.9
12 19 2002	44	BOd	6.7	0.24	390	333	8.1%	64.5	0.0	57.7	15.9	45.8	1.6	6.5	14.5	22.9
12 19 2002	47	BOe	6.8	0.23	277	255	10.5%	37.3	0.0	51.6	6.9	30.5	1.1	5.6	13.3	16.1
12 19 2002	48	BOf	6.7	0.21	439	389	7.5%	56.5	0.0	82.3	12.0	46.0	1.9	9.4	13.8	27.7
12 19 2002	45	BOg	6.7	0.27	208	183	-2.1%	30.0	0.0	35.2	9.6	23.6	3.1	2.3	4.8	9.9
12 19 2002	32	BOh	6.1	7.24	141	121	10.0%	8.8	0.0	24.2	6.7	17.5	1.7	1.4	3.7	0.0

Plymouth Well Sampling Summary

Updated 38519.0 SVK

NM = not measured BDL = below detection limit,
NS = not sampled DND = did not detect
if listed as 0; below 1, rounded, but above detection limit

Sample Date	Sample ID	Borehole ID	pH	DO (mg/L)	Measured Conductivity (mS/cm)	Calc Conductivity (mS/cm)	Net Charge	HCO_3^- Conc. (mg/L)	Acetate Conc. (mg/L)	Cl^- Conc. (mg/L)	SO_4^{-2} Conc. (mg/L)	Na^+ Conc. (mg/L)	K^+ Conc. (mg/L)	Ca^{+2} Conc. (mg/L)	Mg^{+2} Conc. (mg/L)	Fe^{+2} Conc. (mg/L)
12 19 2002	33	BOh	6.1	7.24	141	99	-15.1%	9.6	0.0	24.6	6.7	10.5	1.1	0.7	2.0	0.0
12 19 2002	49	BP	6.5	0.21	302	255	4.0%	55.5	0.0	42.3	14.6	34.7	1.4	5.1	9.8	19.8
12 19 2001	27	BQ	6.0	0.09	91	76	7.5%	7.4	0.0	14.1	4.8	11.1	1.1	0.8	2.0	0.0
12 19 2002	28	BR	5.5	4.05	281	257	12.3%	3.3	0.0	67.7	2.9	28.4	2.5	4.4	13.1	0.0
12 19 2002	82	BS	6.1	0.20	68	76	26.1%	8.5	0.0	9.0	5.7	13.9	1.8	1.0	2.1	0.0
12 19 2002	62	BTa	6.9	1.05	133	124	14.3%	25.8	BDL	12.1	11.7	15.5	0.8	3.3	6.0	1.8
12 19 2002	63	BTb	6.9	1.25	255	256	18.9%	55.1	0.0	37.0	6.4	25.2	0.7	8.9	15.2	4.1
12 19 2002	64	BTc	7.1	0.32	243	245	16.2%	59.1	BDL	33.8	8.3	27.0	0.8	7.8	15.6	3.6
12 19 2002	65	BTd	7.2	0.18	227	230	18.7%	54.5	BDL	28.4	8.6	25.1	0.7	6.4	16.0	3.9
12 19 2002	66	BTd	7.2	0.18	227	240	18.0%	37.5	BDL	28.5	11.2	24.6	0.7	6.8	17.3	3.9
12 19 2002	67	BTe	7.3	0.18	164	164	15.0%	44.3	BDL	16.8	8.6	17.9	0.7	3.9	10.8	3.2
12 19 2002	68	BTf	7.3	0.18	145	140	13.6%	33.7	BDL	14.5	10.2	14.3	0.7	3.8	8.8	2.3
12 19 2002	69	BTg	7.3	0.16	155	142	11.3%	35.9	BDL	19.3	4.1	14.5	0.7	4.0	8.4	2.9
12 19 2002	70	BTh	7.2	0.16	158	156	17.4%	33.4	BDL	20.8	5.5	15.2	0.7	5.1	10.3	3.6
12 19 2002	71	BTi	5.9	5.54	221	212	12.0%	3.2	BDL	54.9	2.9	25.0	1.9	3.6	9.8	0.0
12 19 2002	72	BTj	6.7	1.87	216	195	16.5%	26.9	BDL	33.7	7.1	23.1	0.7	4.3	11.2	10.1
12 19 2002	73	BTk	6.6	1.32	172	171	19.4%	16.3	BDL	23.3	16.3	15.9	3.3	6.4	9.9	3.4
12 19 2002	83	BU	6.4	5.17	140	119	13.3%	18.7	1.3	20.0	3.1	14.4	1.0	4.6	4.5	0.0
12 19 2001	84	BX	6.7	0.50	119	110	19.0%	27.5	3.1	10.1	4.3	10.1	1.4	5.4	6.6	1.8
12 19 2002	85	BY	6.4	0.59	93	86	-3.5%	9.0	0.0	18.2	5.4	10.9	1.0	0.6	2.3	0.0
12 19 2002	85	BZ	6.6	0.17	359	316	16.1%	65.5	0.0	49.0	10.6	58.3	1.3	4.1	11.3	8.3
12 19 2002	106	CA	6.4	1.17	203	197	19.4%	28.2	1.5	28.0	12.1	28.2	1.3	2.9	10.5	0.0
12 19 2002	87	CB	6.6	3.37	211	211	16.4%	39.5	0.0	31.1	9.3	25.0	1.2	5.7	12.0	0.4
12 19 2002	107	CC	6.2	3.00	87	85	10.3%	6.6	1.6	16.0	4.5	11.8	1.2	0.8	3.1	0.0
12 19 2002	108	CD	6.6	0.84	1212	1101	9.3%	33.4	58.1	313.7	2.3	164.1	2.1	29.8	47.4	0.0
12 19 2002	31	ST	6.7	1.02	148	133	8.2%	22.7	0.0	23.3	9.0	18.3	1.7	2.3	4.6	2.3
12 19 2002	14	UB101	5.7	10.65	58	48	1.5%	1.0	0.0	9.1	5.8	7.1	0.8	0.2	0.8	0.0
12 19 2002	15	UB102	5.5	10.70	55	43	-0.5%	0.6	0.0	9.1	6.0	6.9	0.8	0.2	0.7	0.0
12 19 2002	11	UB201	5.3	10.29	211	182	3.3%	0.1	0.0	42.1	6.7	34.0	0.9	1.6	0.5	0.0
12 19 2002	9	UB202	5.5	10.72	62	70	29.5%	0.2	0.0	10.1	6.7	12.8	1.8	1.2	1.6	0.0
12 19 2002	10	UB202	5.5	10.72	62	52	2.7%	0.1	0.0	9.9	6.4	8.5	0.8	0.2	0.5	0.0
12 19 2002	7	UB203	5.6	10.42	61	51	4.7%	1.5	0.0	9.6	5.3	7.5	1.0	0.2	1.0	0.0
12 19 2002	8	UB204	5.6	10.07	65	57	9.1%	1.0	0.0	10.4	6.0	8.7	1.0	0.5	1.1	0.0
12 19 2002	6	UB205	5.7	9.97	94	79	16.5%	3.2	0.0	13.2	7.1	11.7	1.2	1.2	2.5	0.0
12 19 2002	12	UC101	5.7	10.82	57	52	21.0%	1.4	0.0	6.7	6.5	7.1	2.1	0.9	1.5	0.0
12 19 2002	13	UC102	5.5	10.32	65	60	5.9%	1.0	0.0	11.2	6.6	8.5	1.1	0.6	1.2	0.0
12 19 2002	4	UC201	5.7	9.26	346	308	0.3%	1.4	0.0	85.2	13.1	62.3	1.2	0.0	0.0	0.0
12 19 2002	5	UC202	5.9	9.66	95	87	-3.5%	3.2	0.0	14.5	15.3	16.1	1.0	0.0	0.0	0.0
12 19 2002	1	UC203	6.1	8.66	75	65	9.0%	4.8	0.0	8.9	8.6	10.5	3.8	0.3	0.5	0.0
12 19 2002	2	UC204	5.9	9.07	74	66	11.1%	5.1	0.0	7.5	9.6	9.4	4.3	0.4	0.9	0.0
12 19 2002	3	UC205	5.7	3.59	106	97	14.3%	4.4	0.0	12.5	10.2	8.9	4.5	1.3	3.4	0.0
12 19 2002	50	West Weir	6.9	6.47	7590	5660	12.6%	93.1	59.2	2158.5	27.9	1317.7	6.1	229.3	165.0	0.3
1 21 2003	40	AB	6.4	11.14	85	ns	na	8.7	0.0	14.1	9.3	na	na	na	na	0.0
1 21 2003	41	AB	6.4	11.14	55	94	10.4%	6.4	0.0	15.3	9.6	11.8	1.3	2.8	2.7	0.0
1 21 2003	45	AC	5.6	12.22	104	101	20.2%	3.8	0.0	16.8	8.3	14.7	0.6	2.8	3.3	0.0
1 21 2003	39	AD	6.7	10.72	110	104	-9.8%	24.8	0.0	16.7	7.9	10.7	0.4	2.6	3.0	0.4
1 21 2003	58	AE	7.0	4.47	217	214	-9.3%	19.6	0.0	60.0	3.5	35.7	1.0	0.0	1.9	0.0
1 21 2003	59	AE	7.0	4.47	217	220	-15.7%	15.8	0.0	65.5	3.9	34.7	1.0	0.0	1.1	0.0
1 21 2003	60	AF	6.9	3.01	105	101	-9.6%	12.0	0.0	22.8	5.8	8.4	0.7	2.5	3.5	1.1
1 21 2003	63	AG	7.1	4.24	119	114	-13.9%	16.1	0.0	29.0	2.8	17.8	1.1	0.0	0.7	0.0
1 21 2003	55	AH	7.3	0.82	165	161	-10.0%	28.3	0.0	37.8	3.9	15.6	0.9	0.0	2.2	0.3
1 21 2003	50	AI	6.7	6.44	71	76	5.4%	20.9	0.0	8.3	4.9	8.6	0.7	2.9	2.7	0.1
1 21 2003	31	AK	6.8	9.56	52	71	14.7%	14.1	0.0	5.6	8.1	10.6	0.8	2.8	1.5	0.0
1 21 2003	32	AK	6.8	9.56	52	60	-4.3%	15.1	0.0	5.4	8.2	7.3	0.5	2.3	1.0	0.1
1 21 2003	17	AL	6.3	6.03	219	249	2.6%	17.9	0.0	61.7	8.2	43.8	0.7	3.7	2.6	0.9
1 21 2003	43	AM	6.4	0.00	161	174	0.1%	39.5	0.0	25.5	13.3	18.0	0.9	5.7	6.7	0.0
1 21 2003	44	AN	6.6	7.35	84	87	8.3%	19.0	0.0	10.8	6.2	12.2	0.6	2.6	2.5	0.1
1 21 2003	37	AO	7.4	4.54	159	135	-0.8%	40.8	0.0	14.5	11.1	15.8	0.8	4.3	4.4	0.1
1 21 2003	102	AP	6.2	2.60	113	104	17.5%	15.8	0.0	13.4	7.5	15.2	0.6	4.4	2.9	0.0
1 21 2003	97	AQ	6.3	3.03	81	64	-7.2%	6.2	0.0	9.9	9.7	8.0	0.2	0.0	1.9	1.6
1 21 2003	32	AR	6.0	4.70	120	84	9.5%	5.0	0.0	14.3	8.8	14.0	0.4	0.0	2.3	0.0
1 21 2003	30	AS	6.4	0.20	520	532	1.5%	30.3	0.0	150.0	4.1	82.5	2.9	12.5	8.7	1.9
1 21 2003	69	AT	6.7	0.65	389	344	-4.5%	65.1	0.0	73.9	15.3	57.7	0.6	0.0	7.9	2.1
1 21 2003	42	AU	0.0	1.33	na	77	23.5%	0.0	0.0	14.1	5.4	10.4	1.0	2.3	2.8	0.0
1 21 2003	112	AV	6.2	10.41	139	136	7.0%	14.9	0.0	23.5	11.0	20.4	1.0	3.3	2.7	0.0
1 21 2003	117	AW	7.4	1.40	72	94	1.3%	10.4	0.0	14.3	11.5	11.6	1.2	2.2	2.3	0.0
1 21 2003	110	AX	6.0	9.70	128	70	7.8%	3.4	0.0	13.0	6.3	10.3	1.0	1.5	1.0	0.0
1 21 2003	111	AX	6.0	9.70	158	73	-0.6%	3.3	0.0	12.9	9.4	9.1	1.1	1.9	1.1	0.0
1 21 2003	109	AY	6.7	6.24	150	136	6.6%	26.3	0.0	19.6	10.4	22.8	0.7	1.4	3.5	0.0
1 21 2003	116	AZ	7.5	7.70	75	85	-14.9%	4.6	0.0	16.8	12.2	10.8	1.0	1.5	0.3	0.0
1 21 2003	115	BA	7.2	9.79	37	80	6.0%	4.1	0.0	13.9	8.8	11.0	1.1	1.6	1.7	0.0
1 21 2003	115	BB	8.0	2.20	38	97	1.6%	10.6	0.0	17.0	5.8	12.4	1.6	1.8	2.3	0.0
1 21 2003	46	BC	5.9	0.09	82	83	3.4%	5.0	0.0	15.7	7.9	12.4	0.9	1.2	1.4	0.0
1 21 2003	70	BCa	7.0	0.91	758	712	-0.7%	83.6	0.0	201.9	3.5	147.2	1.4	4.5	3.9	3.1
1 21 2003	62	BCb	7.0	0.65	670	644	-2.8%	38.5	0.0	197.0	6.3	121.6	0.8	0.0	8.0	1.5
1 21 2003	55	BCc	7.0	0.58	1192	1068	-0.8%	65.1	0.0	344.8	1.0	216.4	1.4	0.0	14.6	13.8
1 21 2003	24	BCd	6.4	0.64	687	649	-16.1%	17.2	55.2	204.8	8.5	90.0	1.2	11.7	8.0	23.3
1 21 2003	23	BCe	6.1	0.55	1196	1176	-1.5%	12.3	0.0	404.2	8.7	203.0	1.8	21.5	18.1	27.1
1 21 2003	22	BCf	6.5	0.78	422	439	1.7%	44.4	7.6	108.6	5.9	77.7	1.4	6.8	5.2	2.2
1 21 2003	53	BCg	6.9	0.55	1815	1073	-100.6%	54.3	0.0	556.7	1.0	na	na	na	na	10.0
1 21 2003	54	BCh	7.0	0.55	1426	1253	-2.9%	56.5	0.0	415.2	1.2	253.7	1.5	0.0	16.2	4.2
1 21 2003	51	BCi	7.0	0.55	1097	1092	-19.6%	51.0	55.0	328.1	0.7	194.1	1.5	0.0	5.8	10.7
1 21 2003	52	BCj	6.5	0.79	1341	1208	-3.2%	40.5	0.0	426.9	14.9	251.3	1.3	0.0	7.0	16.0
1 21 2003	107	BD	6.1	0.07	1510	1406	8.7%	41.6	0.0	435.1	15.9	259.8	2.2	34.5	34.7	6.5

Plymouth Well Sampling Summary

Updated 37519.0 SVK

NM = not measured   BDL = below detection limit
NS = not sampled   DND = did not detect
if listed as 0: below 1, rounded, but above detection limit

Sample Date	Sample ID	Borehole ID	pH	DO (mg/L)	Measured Conductivity (mS/cm)	Calc Conductivity (mS/cm)	Net Charge	HCO_3^- Conc. (mg/L)	Acetate Conc. (mg/L)	Cl^- Conc. (mg/L)	SO_4^{-2} Conc. (mg/L)	Na^+ Conc. (mg/L)	K^+ Conc. (mg/L)	Ca^{+2} Conc. (mg/L)	Mg^{+2} Conc. (mg/L)	Fe^{+2} Conc. (mg/L)
1 21 2003	105	BE	6.4	0.65	1643	1235	3.4%	25.8	0.0	403.2	12.0	259.8	1.7	20.3	13.0	17.0
1 21 2003	106	BF	6.6	0.07	157	148	3.1%	7.2	0.0	31.5	11.9	23.0	1.2	1.1	0.3	0.0
1 21 2003	91	BG	6.8	4.25	177	150	-1.1%	32.8	0.0	23.9	10.4	19.0	0.7	0.0	6.7	3.3
1 21 2003	75	BH	5.9	4.25	65	57	-6.4%	4.1	0.0	11.4	5.7	8.8	0.7	0.0	0.5	0.0
1 21 2003	85	BI	5.8	4.73	161	135	0.9%	2.2	0.0	35.7	3.5	22.0	1.3	0.0	2.1	0.0
1 21 2003	107	BJ	6.3	1.34	234	205	2.1%	27.0	0.0	39.6	13.6	28.0	0.9	5.7	4.8	0.6
1 21 2003	113	BK	6.2	1.45	76	72	0.3%	4.2	0.0	14.3	6.3	9.9	0.9	1.8	0.5	0.0
1 21 2003	108	BL	6.7	6.03	133	126	2.4%	19.1	0.0	21.5	9.7	20.2	0.6	2.7	1.8	0.0
1 21 2003	72	BM	5.9	0.09	114	102	-2.8%	3.9	0.0	24.5	6.5	17.5	0.9	0.0	0.7	0.0
1 21 2003	71	BMa	7.3	0.20	160	139	-6.5%	53.5	0.0	17.6	5.3	18.6	0.7	0.0	5.2	0.8
1 21 2003	61	BMb	7.0	0.19	170	145	-7.1%	47.9	0.0	23.1	4.4	19.7	0.4	0.0	5.6	1.7
1 21 2003	86	BMc	6.8	0.09	154	118	-13.4%	35.8	0.0	22.0	2.2	14.5	0.5	0.0	4.0	3.6
1 21 2003	64	BMd	6.6	6.00	107	97	-12.5%	12.1	0.0	23.9	3.5	13.0	1.0	0.0	1.7	0.0
1 21 2003	67	BMe	6.2	8.50	129	115	-13.2%	8.9	0.0	31.5	3.4	15.1	1.3	0.0	1.9	0.0
1 21 2003	68	BMe	6.2	8.50	129	108	-1.7%	na	0.0	30.9	3.3	15.8	1.8	0.0	1.5	0.0
1 21 2003	73	BMf	5.8	8.00	124	105	-3.3%	3.1	0.0	28.7	2.9	16.0	1.1	0.0	1.7	0.1
1 21 2003	65	BMg	5.7	7.90	99	84	-1.5%	3.0	0.0	19.0	7.3	14.2	1.0	0.0	0.4	0.0
1 21 2003	74	BMh	0.0	7.00	0	87	0.5%	0.0	0.0	22.0	4.7	14.8	1.1	0.0	0.7	0.1
1 21 2003	36	BN	6.7	7.00	922	892	3.7%	75.3	53.4	231.9	10.0	172.0	1.7	16.4	13.8	11.6
1 21 2003	25	BO	6.2	5.19	212	235	3.3%	11.8	0.0	61.9	4.1	28.2	2.1	5.8	7.2	0.0
1 21 2003	16	BOa	6.3	0.62	233	225	17.2%	45.9	0.0	30.5	13.5	29.0	1.1	10.2	9.3	4.1
1 21 2003	57	BOb	7.1	0.73	189	175	-8.6%	47.2	0.0	28.7	11.5	26.7	0.8	0.0	4.2	3.7
1 21 2003	29	BOc	6.5	0.56	359	332	2.5%	30.9	0.0	79.6	11.3	40.1	1.4	10.1	10.8	11.7
1 21 2003	26	BOd	6.5	0.54	803	748	-3.7%	46.6	0.0	234.5	3.9	87.9	2.5	21.6	23.8	51.4
1 21 2003	19	BOe	6.2	0.71	444	410	3.4%	34.2	0.0	101.6	13.8	56.7	1.6	12.4	10.3	30.4
1 21 2003	20	BOf	6.5	0.70	294	275	-0.6%	44.8	0.0	54.5	15.7	37.1	1.5	8.0	6.3	17.0
1 21 2003	21	BOf	6.5	0.70	294	276	0.5%	43.1	0.0	54.4	16.0	38.4	1.7	8.1	6.1	10.7
1 21 2003	33	BOg	6.3	1.96	158	189	-22.5%	14.6	60.1	30.6	8.8	22.8	3.6	3.2	2.5	6.1
1 21 2003	35	BOh	6.5	7.97	126	129	-3.2%	17.9	0.0	25.2	9.0	17.5	1.6	2.2	2.5	0.2
1 21 2003	34	BP	6.4	0.50	794	725	1.3%	23.2	0.0	223.0	7.7	99.2	5.4	16.4	21.2	43.2
1 21 2003	18	BQ	6.1	3.42	77	85	-5.0%	7.4	0.0	16.1	9.0	9.4	1.0	1.7	2.1	0.0
1 21 2003	27	BR	6.2	0.07	294	325	4.4%	11.6	0.0	59.6	2.7	26.9	2.2	5.9	7.1	43.5
1 21 2003	85	BS	5.9	0.80	68	55	-2.4%	3.3	0.0	10.9	5.3	8.5	0.7	0.0	0.7	0.0
1 21 2003	84	BTa	7.1	1.64	121	104	-7.4%	30.5	0.0	10.5	12.5	12.9	0.6	0.0	4.0	1.6
1 21 2003	81	BTb	6.5	1.05	434	354	-8.2%	5.4	0.0	117.5	4.4	30.3	0.9	0.0	19.7	5.7
1 21 2003	98	BTc	6.8	0.95	230	212	-5.1%	12.6	0.0	55.9	8.7	19.1	0.5	0.0	11.3	2.9
1 21 2003	99	BTc	6.8	0.55	230	215	-4.7%	12.4	0.0	56.2	8.9	20.2	0.5	0.0	11.0	2.9
1 21 2003	94	BTd	7.2	0.75	145	130	-5.9%	18.8	0.0	26.2	10.3	15.6	0.4	0.0	4.5	1.9
1 21 2003	76	BTe	6.2	0.71	714	653	-11.4%	3.8	0.0	231.1	5.0	35.0	1.1	0.0	45.8	17.1
1 21 2003	93	BTf	6.7	0.47	1315	1142	-9.2%	3.0	0.0	426.9	4.6	72.0	1.8	0.0	84.4	22.7
1 21 2003	90	BTg	6.4	0.05	1300	1214	-2.1%	2.3	0.0	429.3	3.4	124.2	2.3	52.5	44.2	43.8
1 21 2003	77	BTh	7.0	0.00	142	127	-13.5%	38.3	0.0	21.2	7.1	14.3	0.7	0.0	4.8	3.9
1 21 2003	78	BTh	7.0	0.00	142	119	-15.1%	39.3	0.0	19.1	6.5	12.7	0.6	0.0	4.8	4.0
1 21 2003	95	BTi	6.1	7.97	141	117	4.0%	4.3	0.0	28.2	5.1	20.3	1.2	0.0	1.7	0.0
1 21 2003	83	BTj	6.9	0.54	172	135	-5.3%	26.2	0.0	26.0	7.3	21.4	0.4	0.0	2.9	8.5
1 21 2003	39	BTk	6.7	1.42	139	145	11.4%	21.9	0.0	12.9	21.9	14.2	2.2	6.6	5.8	1.1
1 21 2003	88	BU	6.6	0.70	134	109	-12.8%	18.5	0.0	23.4	6.3	14.8	0.8	0.0	2.2	0.0
1 21 2003	89	BU	6.6	0.70	134	111	-12.6%	19.4	0.0	23.6	6.4	13.8	0.8	0.0	3.0	0.0
1 21 2003	45	BX	6.6	0.66	116	110	15.2%	30.7	0.0	10.8	4.6	10.9	1.6	7.7	4.0	1.5
1 21 2003	79	BY	6.0	5.55	86	43	-100.0%	0.0	0.0	17.3	4.4	na	na	na	na	0.0
1 21 2003	80	BY	6.0	5.55	86	75	-0.1%	3.1	0.0	17.5	4.2	11.4	0.9	0.7	0.9	0.0
1 21 2003	92	BZ	7.0	0.70	234	222	5.1%	54.3	1.5	33.7	10.5	33.8	0.8	0.0	10.0	7.1
1 21 2003	47	CA	6.4	1.87	175	168	9.1%	32.6	0.0	24.9	10.0	23.1	1.1	4.8	5.6	0.0
1 21 2003	56	CB	6.8	0.00	281	255	-0.7%	54.2	0.0	50.9	8.3	37.5	0.6	0.0	9.5	0.9
1 21 2003	101	CC	6.3	2.50	80	78	-2.5%	4.7	0.0	16.2	6.8	10.9	1.0	1.9	0.6	0.0
1 21 2003	104	CD	6.6	0.65	414	400	12.9%	45.5	0.0	92.1	1.6	59.5	1.1	11.8	14.5	13.4
1 21 2003	28	ST	6.4	0.40	158	na	na	19.8	0.0	14.6	10.7	na	na	na	na	0.3
1 21 2003	14	UB101	5.5	8.70	67	na	na	2.2	na	na	na	9.6	0.9	1.4	1.5	0.0
1 21 2003	15	UB102	5.5	8.93	53	59	6.6%	2.1	0.0	9.4	7.7	7.9	0.8	1.3	1.2	0.0
1 21 2003	6	UB201	5.4	8.67	192	207	1.4%	1.3	0.0	49.0	17.4	33.8	0.9	3.2	1.9	0.0
1 21 2003	7	UB202	5.5	9.80	56	64	-0.8%	2.1	0.0	11.5	8.7	7.9	0.7	1.2	1.2	0.0
1 21 2003	9	UB203	5.6	9.90	55	na	na	1.9	na	na	na	6.3	0.7	1.3	1.1	0.0
1 21 2003	10	UB203	5.6	9.90	58	na	na	1.9	na	na	na	7.2	0.9	1.7	1.5	na
1 21 2003	8	UB204	5.6	8.85	65	na	na	2.3	na	na	na	na	na	na	na	0.0
1 21 2003	11	UB205	5.6	9.60	84	85	13.3%	1.9	0.0	15.5	8.2	11.6	0.9	2.3	1.4	0.0
1 21 2003	12	UC101	5.7	6.58	59	81	-13.6%	3.2	0.0	10.4	19.2	9.0	1.0	1.4	1.0	0.0
1 21 2003	13	UC102	5.6	7.50	66	69	14.1%	2.7	0.0	9.8	8.6	7.1	2.7	2.3	2.0	0.0
1 21 2003	1	UC201	6.2	10.20	214	na	na	na	0.0	53.5	8.4	34.6	0.8	1.4	0.9	na
1 21 2003	3	UC202	5.8	10.25	118	115	1.6%	2.7	0.0	29.0	4.5	16.2	1.7	2.0	1.7	0.1
1 21 2003	5	UC203	5.7	9.67	108	99	-3.7%	2.8	0.0	19.5	12.2	13.8	2.8	1.0	0.8	0.0
1 21 2003	2	UC204	5.9	9.45	79	na	na	na	0.0	9.1	9.4	8.3	3.6	1.2	1.1	0.2
1 21 2003	4	UC205	5.6	4.95	101	64	-25.6%	3.4	0.0	12.6	10.6	na	na	na	na	0.0
1 31 2003	114	West Weir	6.5	4.55	35200	32838	-34.4%	124.2	29990.6	9384.3	55.1	6231.0	345.4	830.8	614.0	0.4
2 20 2003	57	AA	6.3	15.39	72	71	8.3%	6.1	0.0	4.7	15.9	10.4	1.0	1.1	1.7	0.0
2 20 2003	54	AB	6.2	9.69	102	104	6.0%	3.6	0.0	21.7	8.2	14.2	0.6	1.4	2.9	0.0
2 20 2003	59	AC	6.5	13.45	74	74	7.0%	5.0	0.0	13.6	6.3	10.2	0.3	1.2	2.1	0.0
2 20 2003	58	AD	6.4	5.26	203	204	11.8%	22.0	0.0	35.9	14.5	32.3	0.4	4.0	6.2	0.0
2 20 2003	5	AE	6.8	7.45	152	151	7.7%	17.2	0.0	33.6	2.3	27.0	0.6	2.4	2.7	1.4
2 20 2003	3	AF	6.6	4.27	107	109	13.1%	7.0	0.0	22.0	4.6	8.7	0.6	4.3	5.8	1.7
2 20 2003	8	AG	6.6	1.01	188	189	14.4%	42.2	0.0	26.8	6.5	27.2	1.6	5.7	7.3	3.1
2 20 2003	2	AH	6.4	0.23	457	469	12.0%	11.0	0.0	127.1	4.9	39.0	2.1	31.3	35.6	1.2
2 20 2003	53	AI	6.3	6.85	112	116	8.1%	8.1	0.0	23.3	7.4	15.8	9.5	2.5	3.5	1.0
2 20 2003	52	AJ	6.4	11.67	81	78	13.5%	13.9	0.0	9.8	5.4	11.8	0.7	2.3	2.1	1.2
2 20 2003	6	AK	6.8	0.60	64	65	3.5%	15.0	0.0	7.3	5.4	9.5	0.3	1.7	1.6	8.9
2 20 2003	35	AL	6.5	2.79	277	264	11.2%	17.8	0.0	66.8	0.0	50.0	0.8	4.8	3.5	3.5

Plymouth Well Sampling Summary

Updated 33519.0 SVK

NM = not measured BDL = below detection limit
NS = not sampled DND = did not detect
If listed as 0; below 1, rounded, but above detection limit

Sample Date	Sample ID	Borehole ID	pH	DO (mg/L)	Measured Conductivity (mS/cm)	Calc Conductivity (mS/cm)	Net Charge	HCO_3^- Conc. (mg/L)	Acetate Conc. (mg/L)	Cl^- Conc. (mg/L)	SO_4^{-2} Conc. (mg/L)	Na^+ Conc. (mg/L)	K^+ Conc. (mg/L)	Ca^{+2} Conc. (mg/L)	Mg^{+2} Conc. (mg/L)	Fe^{+2} Conc. (mg/L)
2 20 2003	14	AM	6.8	7.72	153	180	21.7%	58.9	0.0	6.1	14.8	8.1	0.6	11.6	15.8	1.3
2 20 2003	93	AN	7.9	9.34	150	117	-4.3%	34.5	0.0	13.8	10.0	14.0	0.7	3.1	3.5	0.5
2 20 2003	91	AO	7.7	6.30	150	128	-5.6%	45.3	0.0	10.7	13.1	15.9	0.9	3.2	3.6	0.8
2 20 2003	88	AP	7.9	4.61	297	200	8.6%	54.8	0.0	27.0	7.0	22.8	0.6	8.1	9.0	2.8
2 20 2003	89	AP	7.9	4.61	297	203	2.0%	55.2	0.0	33.8	8.0	20.2	0.6	8.0	8.8	2.6
2 20 2003	79	AQ	7.7	5.77	189	92	-1.6%	20.4	0.0	13.1	9.9	9.4	0.8	3.2	2.9	0.2
2 20 2003	73	AR	6.8	7.27	296	107	5.6%	15.1	0.0	19.5	5.3	12.6	0.5	4.1	3.1	0.3
2 20 2003	4	AS	6.4	0.55	1272	1139	6.1%	29.6	0.0	262.6	2.5	179.9	5.6	37.9	28.0	8.9
2 20 2003	27	AT	6.5	0.22	759	731	6.7%	45.7	0.0	210.1	0.0	100.1	2.0	25.1	24.3	15.4
2 20 2003	69	AU	7.4	2.01	1658	1233	1.7%	93.1	145.1	323.9	1.3	236.9	2.2	29.5	22.4	9.2
2 20 2003	13	AV	6.6	6.84	99	97	15.1%	16.0	0.0	14.4	3.5	14.8	1.0	2.3	3.0	1.6
2 20 2003	11	AX	5.9	9.37	75	70	19.2%	4.3	0.0	11.5	4.9	10.5	1.0	1.2	2.2	0.4
2 20 2003	15	AY	6.7	7.27	119	109	11.7%	21.3	0.0	16.6	4.1	15.2	0.6	2.6	4.1	14.0
2 20 2003	82	BC	7.8	4.14	143	79	1.7%	9.4	0.0	14.2	6.3	12.6	0.8	0.9	1.1	0.0
2 20 2003	62	BCa	6.7	0.05	1230	1124	7.4%	54.8	0.0	344.4	0.3	224.5	1.8	22.1	17.1	7.8
2 20 2003	71	BCb	7.2	0.71	3108	2332	+1.4%	103.3	518.3	859.3	0.7	537.5	3.2	91.0	73.4	14.6
2 20 2003	70	BCc	7.6	0.14	840	659	-2.6%	114.5	67.1	152.9	0.5	140.4	1.1	9.9	7.5	4.1
2 20 2003	64	BCd	6.9	0.12	203	197	7.5%	51.9	0.0	32.7	1.4	42.0	0.6	2.3	1.9	3.2
2 20 2003	63	BCe	6.9	0.75	153	152	1.5%	20.6	0.0	34.5	2.4	35.4	0.6	2.3	2.1	2.7
2 20 2003	68	BCf	8.2	0.13	1190	1021	-2.0%	85.2	125.8	265.3	0.8	198.3	2.3	16.7	14.4	13.6
2 20 2003	66	BCg	8.0	0.14	1266	1010	1.3%	116.6	77.0	262.5	0.3	207.7	1.3	15.7	12.6	5.9
2 20 2003	67	BCg	8.0	0.14	1265	1014	0.8%	120.0	77.2	263.6	0.4	205.8	1.3	16.5	13.3	5.9
2 20 2003	83	BCh	7.1	0.84	1794	1591	2.8%	58.9	120.2	471.7	0.3	304.0	1.5	38.2	33.8	7.5
2 20 2003	77	BCi	7.6	0.14	291	198	7.3%	64.1	0.0	28.5	1.1	45.6	0.5	1.2	0.8	0.7
2 20 2003	78	BCi	7.6	0.14	291	203	3.9%	63.9	0.0	31.7	1.3	44.8	0.6	1.6	1.0	0.7
2 20 2003	76	BCj	7.1	0.13	272	189	5.6%	39.5	0.0	29.3	11.9	40.1	0.4	1.4	1.2	3.3
2 20 2003	86	BD	7.2	1.84	13554	1173	2.5%	87.2	126.0	309.2	2.0	226.9	2.0	27.6	21.4	8.6
2 20 2003	10	BE	7.3	0.20	692	596	-18.9%	96.4	102.4	143.5	0.6	93.8	0.5	5.8	5.3	7.5
2 20 2003	84	BF	7.3	5.41	335	242	2.3%	27.0	10.2	53.0	3.7	35.2	0.7	5.1	6.4	0.0
2 20 2003	94	BG	7.1	5.27	257	201	6.1%	51.1	0.0	27.7	10.6	26.8	1.0	6.2	7.1	3.0
2 20 2003	74	BH	6.3	2.72	148	69	-3.0%	11.6	0.0	12.1	4.9	9.5	0.8	1.1	1.3	0.0
2 20 2003	85	BI	7.3	5.30	172	93	1.3%	13.3	0.0	16.0	6.1	13.8	1.0	1.4	1.5	0.0
2 20 2003	12	BJ	6.5	1.63	140	132	18.8%	29.9	1.0	15.0	5.7	22.4	0.6	3.6	4.4	3.4
2 20 2003	35	BK	6.2	2.55	82	84	5.7%	9.5	0.0	15.8	4.9	12.3	0.9	1.6	1.9	0.0
2 20 2003	96	BL	7.4	6.84	233	195	3.8%	19.7	0.0	44.9	5.4	25.2	1.0	4.0	6.2	0.6
2 20 2003	95	BM	6.3	3.28	152	103	3.5%	8.8	0.0	21.1	6.5	17.0	1.0	1.1	1.4	0.0
2 20 2003	28	BMa	6.6	0.05	1153	1088	7.1%	54.2	0.0	332.0	0.0	132.9	1.7	53.0	40.8	19.4
2 20 2003	29	BMb	6.7	0.11	390	372	6.1%	47.1	0.0	91.2	0.0	58.4	0.9	11.4	7.9	12.9
2 20 2003	30	BMc	6.5	1.98	374	375	7.0%	24.3	0.0	100.6	0.0	46.6	3.6	14.6	10.6	16.5
2 20 2003	31	BMd	6.4	9.40	134	132	8.0%	11.6	0.0	31.5	0.0	16.7	1.6	3.4	4.0	0.0
2 20 2003	32	BMe	6.0	9.59	119	117	17.7%	6.6	0.0	25.5	0.0	16.8	1.3	2.3	3.1	1.5
2 20 2003	37	BMf	6.0	8.82	93	83	19.1%	6.5	0.0	17.7	0.0	14.5	1.1	1.4	2.0	0.0
2 20 2003	38	BMg	5.8	8.29	98	90	17.1%	4.1	0.0	16.7	5.6	14.8	1.1	1.6	2.1	0.1
2 20 2003	39	BMh	5.7	8.84	109	95	18.5%	3.1	0.0	18.2	5.8	17.1	1.2	1.5	1.9	12.3
2 20 2003	16	BO	5.8	5.01	172	173	6.6%	4.5	0.0	45.0	3.7	26.3	1.7	2.3	3.8	13.6
2 20 2003	21	BOa	6.4	0.33	594	570	8.4%	11.3	0.0	168.2	0.0	58.1	1.8	24.3	24.8	12.2
2 20 2003	22	BOa	6.4	0.33	594	565	6.3%	10.8	0.0	170.2	0.0	54.7	1.8	24.0	24.7	12.2
2 20 2003	18	BOb	6.6	0.37	375	354	7.5%	33.5	0.0	85.5	5.0	57.8	1.4	7.1	8.4	12.0
2 20 2003	24	BOc	6.9	0.44	289	257	9.8%	75.1	0.0	40.5	0.0	53.5	1.2	3.1	4.5	6.6
2 20 2003	19	BOd	6.7	0.41	321	295	4.2%	71.6	0.0	48.8	12.0	46.5	1.3	5.9	8.4	18.8
2 20 2003	23	BOe	6.8	0.69	221	182	14.1%	60.3	0.0	22.3	0.0	41.5	0.9	2.1	2.5	7.3
2 20 2003	25	BOf	6.6	0.52	195	182	18.3%	33.2	0.0	32.0	0.0	36.9	2.1	2.9	3.5	12.1
2 20 2003	35	BOg	6.4	4.81	145	139	8.9%	15.0	0.0	31.9	0.0	21.0	2.5	2.6	3.2	1.9
2 20 2003	20	BOh	6.2	8.91	125	121	11.9%	16.3	0.0	25.2	0.0	21.1	1.4	1.7	2.5	0.0
2 20 2003	17	BP	6.6	0.44	155	128	16.2%	34.8	0.0	17.6	0.0	26.3	0.8	1.7	2.8	11.3
[illegible]	[illegible]	BQ	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4.6	9.9	0.9	1.2	2.3	19.5
[illegible]	[illegible]	BQ	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4.5	8.9	0.9	1.2	2.6	0.3
2 20 2003	1	BR	6.1	0.95	192	157	13.2%	5.8	0.0	37.1	3.2	24.5	1.5	2.8	4.1	0.0
2 20 2003	90	BS	7.2	0.95	119	68	-4.2%	15.6	0.0	9.3	6.1	9.2	0.8	1.3	1.3	0.0
2 20 2003	43	BTa	6.4	2.29	151	na	na	18.9	na	na	na	17.2	0.7	5.7	6.1	na
2 20 2003	44	BTb	6.8	0.81	845	829	7.1%	18.7	0.0	251.8	5.1	54.7	1.3	44.5	49.0	12.6
2 20 2003	45	BTb	6.8	0.81	845	856	4.2%	15.9	0.0	269.1	5.2	53.0	1.4	44.2	49.9	12.7
2 20 2003	48	BTc	6.5	0.27	882	855	4.2%	14.8	0.0	267.6	7.8	66.2	1.4	41.2	44.6	16.9
2 20 2003	43	BTd	6.6	0.91	1855	1647	3.9%	27.2	0.0	568.0	3.0	234.3	3.0	64.6	53.0	41.4
2 20 2003	46	BTe	6.8	0.14	1756	1570	2.4%	87.8	74.5	437.3	0.6	321.6	3.9	32.2	19.3	13.1
2 20 2003	47	BTf	6.6	0.35	2048	1804	0.0%	61.5	139.6	578.3	0.4	365.5	5.8	39.6	20.5	19.4
2 20 2003	41	BTg	6.4	0.36	1828	1515	6.8%	64.7	0.0	435.1	2.3	319.9	4.3	33.3	17.7	59.5
2 20 2003	42	BTh	6.4	0.37	1833	1595	-3.5%	48.1	0.0	561.2	16.0	293.3	6.5	23.0	21.1	54.6
2 20 2003	51	BTi	6.1	0.73	458	459	5.2%	7.7	0.0	135.5	3.0	71.8	3.3	9.1	9.8	0.1
2 20 2003	49	BTj	7.0	0.72	172	150	-0.2%	28.7	0.0	27.9	6.6	25.1	1.1	2.3	1.3	10.8
2 20 2003	50	BTk	6.9	0.75	162	166	4.8%	47.4	0.0	18.3	12.0	23.2	1.2	5.2	4.9	1.7
2 20 2003	92	BU	7.7	10.42	1755	220	6.5%	37.7	0.0	48.9	3.3	25.2	1.6	9.0	5.3	0.0
2 20 2003	81	BX	7.3	0.27	192	114	5.0%	34.2	0.0	13.3	4.9	12.7	1.4	5.9	3.3	1.6
2 20 2003	75	BY	6.8	1.85	147	77	4.2%	12.3	0.0	13.5	3.9	11.0	0.9	1.6	1.7	0.1
2 20 2003	87	BZ	7.4	0.82	232	163	4.3%	45.2	0.0	22.8	6.7	19.7	0.5	4.9	6.6	3.6
2 20 2003	55	CA	6.5	3.01	185	183	14.6%	29.5	0.0	33.3	9.7	26.6	1.0	4.8	7.0	0.0
2 20 2003	56	CA	6.5	3.01	185	179	16.0%	29.7	0.0	26.9	9.1	25.0	1.0	5.1	7.5	0.0
2 20 2003	33	CB	6.6	1.95	549	532	11.8%	61.1	0.0	125.5	0.0	93.8	1.1	11.2	13.7	10.1
2 20 2003	34	CB	6.6	1.95	549	539	10.9%	59.6	0.0	130.7	0.0	93.4	1.0	11.4	14.0	10.3
2 20 2003	61	CC	6.5	4.50	78	76	9.1%	7.0	0.0	14.2	4.3	11.6	0.9	1.3	1.6	0.0
2 20 2003	60	CD	6.5	0.11	336	316	14.7%	69.9	0.0	58.8	1.3	50.5	1.0	9.4	11.1	10.7
2 20 2003	65	West Weir	7.4	4.83	95000	7341	3.3%	97.6	1043.5	2783.3	35.1	2065.1	8.4	125.4	106.2	0.3
3 15 2003	16	AA	6.5	13.85	99	101	-2.0%	10.0	1.8	15.3	12.6	9.7	1.2	2.1	3.8	0.1
3 15 2003	17	AB	6.1	12.90	72	74	4.4%	2.6	1.7	12.6	8.6	5.9	0.5	1.6	3.8	0.1
3 15 2003	18	AC	6.2	15.65	299	269	5.5%	3.2	1.9	74.1	4.2	41.8	0.9	4.1	6.1	0.0

Plymouth Well Sampling Summary

Updated 35519.0 SVK

NM = not measured
NS = not sampled
BDL = below detection limit
DND = did not detect
If listed as 0, below 1, rounded, but above detection limit

Sample Date	Sample ID	Borehole ID	pH	DO (mg/L)	Measured Conductivity (uS/cm)	Calc Conductivity (uS/cm)	Net Charge	HCO_3^- Conc. (mg/L)	Acetate Conc. (mg/L)	Cl^- Conc. (mg/L)	SO_4^{-2} Conc. (mg/L)	Na^+ Conc. (mg/L)	K^+ Conc. (mg/L)	Ca^{+2} Conc. (mg/L)	Mg^{+2} Conc. (mg/L)	Fe^{+2} Conc. (mg/L)
3 18 2003	19	AD	6.1	10.00	400	377	6.8%	23.7	1.9	95.0	9.1	55.8	0.4	5.5	11.5	0.0
3 18 2003	20	AE	6.6	0.63	1149	1017	5.8%	23.4	4.4	320.9	1.5	167.1	2.6	23.2	23.3	0.7
3 18 2003	21	AF	6.6	7.00	297	281	6.9%	10.9	0.0	73.7	5.0	35.8	1.1	7.6	9.1	2.1
3 18 2003	22	AF	6.6	7.00	297	282	6.3%	10.9	0.0	74.4	5.2	35.7	1.0	7.5	9.1	2.1
3 18 2003	115	AG	6.6	3.94	369	353	-1.5%	28.6	28.1	86.2	3.2	60.5	1.9	5.8	4.5	1.7
3 18 2003	23	AH	6.8	1.89	304	284	3.5%	26.7	2.4	71.1	2.7	47.9	1.0	4.8	4.7	0.1
3 18 2003	24	AI	6.9	5.41	332	315	-6.8%	21.0	74.2	62.4	2.8	49.5	0.6	3.8	7.6	0.2
3 18 2003	25	AJ	6.4	10.64	103	165	5.3%	8.8	0.0	41.2	3.0	12.8	1.1	7.7	6.7	0.1
3 18 2003	26	AK	7.0	1.12	151	145	-2.7%	23.5	2.1	28.7	6.3	20.2	0.4	4.6	2.0	4.4
3 18 2003	27	AL	6.7	2.45	959	847	4.1%	32.6	2.4	263.2	4.2	131.6	1.9	24.1	19.8	8.4
3 18 2003	28	AM	6.6	8.35	425	431	11.0%	59.5	1.8	81.6	10.0	51.6	1.4	12.3	18.1	0.1
3 18 2003	29	AN	6.6	12.97	101	101	2.3%	26.1	0.0	10.9	9.4	12.8	0.8	2.9	3.0	0.1
3 18 2003	30	AO	6.7	5.37	93	193	0.6%	30.9	1.9	38.0	8.7	20.5	1.1	6.2	6.8	0.9
3 18 2003	31	AP	6.4	8.84	394	362	6.5%	24.3	0.0	91.7	6.9	36.7	1.1	15.3	14.6	0.5
3 18 2003	32	AQ	6.8	14.60	103	95	1.2%	9.0	1.9	15.2	10.0	6.7	0.8	4.5	3.6	0.1
3 18 2003	33	AQ	6.8	14.60	103	92	1.6%	8.0	1.8	14.9	9.3	6.6	0.8	4.4	3.5	0.1
3 18 2003	56	AR	5.4	5.85	143	132	7.6%	2.8	0.0	31.2	5.7	12.4	1.1	6.4	4.0	0.2
3 18 2003	35	AS	0.0	0.75	1099	942	7.5%	0.0	2.0	298.4	3.0	165.3	2.9	22.9	19.0	0.4
3 18 2003	36	AT	6.8	1.04	1227	1065	4.3%	75.3	9.2	312.8	9.8	215.6	1.7	17.2	13.2	2.9
3 18 2003	37	AU	6.4	1.25	77	87	3.3%	13.8	1.9	14.1	5.2	11.8	1.1	2.2	3.0	0.0
3 18 2003	38	AV	6.3	3.75	455	427	3.8%	14.1	1.7	122.4	3.2	37.5	2.2	16.2	19.1	0.0
3 18 2003	39	AW	7.7	1.60	83	82	-13.1%	19.2	2.1	13.6	5.3	10.3	1.0	1.3	1.4	0.0
3 18 2003	40	AX	6.1	13.18	102	91	8.5%	6.6	1.8	17.6	4.6	11.0	1.1	1.7	3.4	0.0
3 18 2003	41	AY	5.9	8.39	407	384	7.5%	7.3	1.7	107.2	3.6	42.8	1.4	11.0	16.5	0.0
3 18 2003	42	AZ	5.7	8.43	39	67	3.4%	2.5	1.8	12.0	6.9	8.9	1.1	1.4	1.4	0.0
3 18 2003	43	BA	5.7	9.54	82	79	4.1%	2.0	1.9	14.5	8.3	10.8	1.2	1.5	1.5	0.0
3 18 2003	44	BA	5.7	9.54	82	78	2.8%	2.1	1.8	14.4	8.2	10.1	1.2	1.6	1.6	0.0
3 18 2003	45	BB	5.9	3.97	78	75	2.7%	4.5	1.9	14.5	5.6	9.7	1.0	1.4	1.9	0.0
3 18 2003	45	BC	6.7	4.07	83	78	-8.0%	17.8	2.3	12.6	4.6	15.1	0.2	0.0	0.0	0.0
3 18 2003	47	BCa	6.9	0.53	3469	2828	1.8%	115.4	157.2	978.7	2.9	393.8	3.9	61.7	52.3	22.8
3 18 2003	48	BCb	6.9	0.43	5030	3595	2.2%	142.8	361.3	1420.1	0.6	859.9	5.3	97.1	95.5	26.4
3 18 2003	49	BCc	6.7	0.47	1620	1380	2.1%	98.0	67.5	413.3	0.5	244.2	2.0	35.3	29.9	14.7
3 18 2003	50	BCd	6.5	0.46	529	518	3.5%	28.4	2.2	152.3	1.4	85.5	1.2	12.8	9.6	11.4
3 18 2003	51	BCe	5.6	1.99	917	804	3.1%	3.0	0.0	260.0	3.0	90.4	2.1	32.8	27.9	4.7
3 18 2003	52	BCf	7.0	1.56	2299	1959	-0.7%	115.7	206.4	595.7	0.8	383.6	3.1	40.6	35.6	24.6
3 18 2003	53	BCg	6.7	0.50	1937	1633	1.9%	71.6	70.3	524.6	0.5	275.2	1.9	54.1	38.0	21.5
3 18 2003	54	BCh	7.1	0.42	717	1783	1.3%	161.2	63.5	353.4	0.6	251.7	1.5	27.2	20.7	7.3
3 18 2003	55	BCh	7.1	0.42	717	1272	1.8%	181.2	62.4	347.7	0.6	252.2	1.4	26.3	20.7	7.4
3 18 2003	117	BCi	7.5	0.43	655	559	-2.2%	58.8	8.8	171.0	0.7	118.3	1.0	4.9	3.4	1.6
3 18 2003	118	BCj	6.4	0.35	2173	1816	5.3%	73.1	7.3	606.9	0.9	395.1	1.7	26.6	23.0	16.7
3 18 2003	58	BD	7.0	0.45	3222	2737	1.3%	149.7	325.0	862.0	0.6	535.6	3.7	78.2	70.1	23.2
3 18 2003	59	BE	6.5	0.35	1861	1552	5.1%	87.8	11.6	458.9	1.7	342.8	1.5	19.8	18.2	5.4
3 18 2003	60	BF	5.8	0.42	4065	3257	1.7%	11.4	157.8	1206.5	12.0	763.2	6.9	47.3	32.7	0.7
3 18 2003	61	BG	6.6	7.60	111	175	8.2%	36.2	0.0	25.1	10.9	22.3	0.8	6.9	6.2	4.3
3 18 2003	62	BH	6.7	3.21	69	69	-0.7%	12.8	0.0	11.1	5.4	8.5	0.9	1.4	1.5	0.0
3 18 2003	63	BI	6.3	9.06	104	93	5.5%	5.7	0.0	19.6	5.3	12.6	1.2	2.0	2.0	0.0
3 18 2003	64	BJ	6.5	1.95	342	311	5.3%	22.4	0.0	19.2	5.3	37.8	1.0	10.3	10.1	5.0
3 18 2003	65	BK	6.2	2.18	75	77	6.1%	3.7	0.0	15.9	5.3	10.4	1.0	1.7	1.6	0.2
3 18 2003	65	BK	6.2	2.18	75	76	6.6%	3.0	0.0	13.7	5.3	10.1	1.0	1.7	1.6	0.1
3 18 2003	116	BL	5.9	0.94	679	648	6.2%	6.6	0.0	158.0	3.0	61.2	2.2	26.1	30.3	0.0
3 18 2003	65	BM	5.8	3.37	772	102	5.9%	3.8	0.0	22.1	6.9	17.6	0.9	1.0	1.2	0.1
3 18 2003	69	BMa	6.9	2.58	293	270	6.4%	31.9	0.0	59.6	8.2	48.1	0.8	6.2	3.4	4.1
3 18 2003	70	BMb	7.1	2.05	316	303	4.1%	32.4	7.6	70.8	3.3	55.6	2.5	4.4	2.6	1.5
3 18 2003	71	BMc	0.0	1.34	114	690	6.0%	0.0	74.9	152.8	4.1	135.7	1.3	15.0	7.4	8.3
3 18 2003	72	BMd	7.0	1.41	264	249	-0.3%	25.5	0.0	63.5	3.7	40.7	1.4	3.5	3.5	0.9
3 18 2003	73	BMe	6.5	1.15	659	677	-0.7%	21.7	61.2	185.7	7.2	131.6	1.0	7.4	6.4	8.8
3 18 2003	74	BMf	5.2	3.17	828	723	2.1%	1.7	2.2	229.2	8.4	129.9	1.9	9.0	10.2	1.5
3 18 2003	75	BMg	5.4	7.50	228	211	5.5%	2.1	0.0	57.5	4.3	30.9	1.4	4.1	4.4	0.2
3 18 2003	76	BMh	5.5	9.04	54	91	8.5%	1.8	0.0	18.5	6.9	13.5	1.1	1.6	1.7	0.0
3 18 2003	77	BMi	5.5	9.04	54	89	6.9%	2.0	0.0	18.7	6.9	13.0	1.0	1.6	1.7	0.0
3 18 2003	78	BN	7.2	0.85	551	505	-2.1%	57.9	57.6	116.6	2.2	112.1	0.4	0.7	1.4	0.7
3 18 2003	79	BO	6.0	4.35	214	195	3.8%	7.1	0.0	53.1	3.0	27.6	1.8	3.6	4.7	0.1
3 18 2003	80	BOa	7.0	0.66	302	274	-1.4%	37.5	5.3	65.8	1.8	49.1	0.8	2.6	3.3	6.2
3 18 2003	81	BOb	6.9	0.65	559	555	-4.7%	58.8	21.0	164.5	0.7	98.1	1.4	9.1	8.3	9.5
3 18 2003	82	BOc	6.9	0.74	525	550	-11.0%	33.3	1.7	178.1	2.2	78.5	1.4	6.9	8.9	9.9
3 18 2003	83	BOd	6.8	0.67	727	639	0.4%	25.8	1.8	192.3	8.3	95.4	1.6	12.2	15.8	23.4
3 18 2003	84	BOe	7.0	0.75	310	268	-2.3%	46.1	0.0	59.7	7.1	45.2	1.2	3.0	3.9	11.6
3 18 2003	85	BOf	6.7	0.83	866	718	-2.1%	32.1	0.0	224.8	5.8	96.6	3.3	16.5	19.3	33.9
3 18 2003	86	BOg	6.3	0.83	984	819	-0.7%	26.9	0.0	272.6	5.9	142.3	6.6	12.0	14.2	20.2
3 18 2003	87	BOh	5.5	1.17	885	799	5.6%	6.5	0.0	251.3	2.8	95.8	4.9	28.4	28.7	0.0
3 18 2003	88	BOh	5.5	1.17	585	826	5.3%	6.5	0.0	254.9	2.1	95.8	5.0	28.6	29.1	0.1
3 18 2003	89	BP	6.6	0.83	1220	1013	-0.5%	33.2	6.1	332.9	2.9	163.9	2.6	15.8	22.5	37.9
3 18 2003	90	BQ	5.8	3.72	77	74	1.5%	8.0	0.0	14.0	5.1	8.8	0.9	1.3	2.3	0.0
3 18 2003	91	BR	5.7	2.73	176	118	5.5%	5.2	0.0	28.1	4.5	17.3	1.2	2.0	2.4	0.0
3 18 2003	92	BS	5.8	1.01	65	61	3.4%	6.3	0.0	9.6	6.3	7.5	0.8	1.6	1.4	0.0
3 18 2003	93	BTa	6.8	0.85	453	419	6.6%	87.7	1.7	85.0	3.7	72.0	1.3	10.5	9.9	3.7
3 18 2003	94	BTb	7.0	0.30	1049	995	-9.6%	321.6	1.3	234.0	0.6	188.4	1.8	14.0	10.8	4.9
3 18 2003	95	BTc	7.0	0.24	2003	1697	3.4%	174.8	17.5	521.6	0.8	342.0	2.7	35.1	29.9	16.6
3 18 2003	96	BTd	6.4	0.23	1684	1504	4.5%	89.9	0.0	481.7	2.6	258.2	2.3	39.9	39.8	15.7
3 18 2003	97	BTe	6.7	0.26	1672	1490	-0.1%	102.4	69.4	426.5	0.6	275.8	3.7	38.8	16.3	31.7
3 18 2003	98	BTf	6.9	0.23	395	735	-5.3%	73.6	113.5	179.2	0.5	143.6	2.0	5.7	9.1	20.7
3 18 2003	99	BTf	6.9	0.20	395	750	-9.8%	115.9	114.6	179.3	0.6	141.3	2.0	6.2	9.3	20.6
3 18 2003	106	BTg	6.6	0.35	929	802	5.0%	58.1	0.0	211.1	32.1	176.5	2.0	5.7	4.3	16.8
3 18 2003	101	BTh	7.2	0.33	453	383	6.3%	7.8	0.0	97.8	19.5	71.5	2.6	4.0	4.2	9.4
3 18 2003	102	BTi	6.5	0.20	876	775	-5.2%	67.7	47.4	213.5	14.1	129.0	1.9	11.2	14.5	33.8

Plymouth Well Sampling Summary

Updated | 35519.0 | SVK

NM = not measured; NS = not sampled; BDL = below detection limit; DND = did not detect

if listed as 0; below 1, rounded, but above detection limit

Sample Date	Sample ID	Borehole ID	pH	DO (mg/L)	Measured Conductivity (mS/cm)	Calc Conductivity (mS/cm)	Net Charge	HCO_3^- Conc. (mg/L)	Acetate Conc. (mg/L)	Cl^- Conc. (mg/L)	SO_4^{-2} Conc. (mg/L)	Na^+ Conc. (mg/L)	K^+ Conc. (mg/L)	Ca^{+2} Conc. (mg/L)	Mg^{+2} Conc. (mg/L)	Fe^{+2} Conc. (mg/L)
3 18 2003	103	BTj	6.6	0.45	168	157	+13.8%	26.5	0.0	29.2	6.3	19.6	3.6	1.1	0.7	12.8
3 18 2003	104	BTk	6.7	0.70	1180	987	-0.6%	40.3	2.4	319.5	3.5	142.7	2.9	39.9	23.0	30.9
3 18 2003	105	BU	6.9	8.84	140	113	4.4%	17.5	0.0	20.7	5.3	15.0	1.3	4.0	2.2	0.0
3 18 2003	106	BX	6.7	0.59	115	105	-2.1%	34.9	3.4	11.2	4.5	9.3	1.4	5.5	3.4	1.5
3 18 2003	107	BY	6.5	9.66	77	70	14.2%	0.0	1.8	13.2	5.4	10.6	1.1	1.7	1.4	0.0
3 18 2003	108	BZ	7.5	0.55	250	234	2.4%	40.7	0.0	50.4	3.0	22.5	0.8	9.3	9.7	6.5
3 18 2003	109	CA	6.5	2.41	125	237	11.5%	32.1	0.0	44.5	9.5	25.3	1.2	8.3	11.5	0.0
3 18 2003	110	CA	6.5	2.41	125	235	11.6%	31.5	0.0	44.1	9.5	24.2	1.3	8.4	11.7	0.2
3 18 2003	112	CC	7.5	5.38	78	71	17.5%	0.0	0.0	13.2	6.0	10.8	1.2	1.5	1.6	0.0
3 18 2003	113	CD	6.5	0.82	360	662	3.2%	69.6	27.7	173.9	1.9	96.1	1.4	19.8	19.8	20.4
3 18 2003	67	East Weir	7.8	0.00	452	330	4.1%	33.8	0.0	82.9	3.3	57.9	3.0	6.7	3.5	0.0
3 18 2003	114	ST	6.5	0.64	371	341	2.8%	26.9	0.0	90.9	3.5	61.6	1.7	4.0	4.0	1.2
3 18 2003	14	UB101	5.3	10.96	65	62	1.7%	1.0	2.4	11.1	7.0	7.9	0.8	1.0	1.4	0.0
3 18 2003	15	UB102	5.3	10.92	53	51	5.4%	0.8	2.1	8.9	5.8	6.2	0.5	1.3	1.4	0.0
3 18 2003	6	UB201	5.7	11.20	547	497	3.6%	2.4	0.0	141.1	18.9	100.1	1.2	4.7	1.6	0.0
3 18 2003	7	UB202	5.7	11.20	99	92	5.7%	2.0	0.0	20.6	5.8	13.4	0.9	1.8	1.5	0.0
3 18 2003	8	UB203	5.6	11.60	56	55	4.3%	1.6	2.0	9.7	5.5	6.2	0.8	1.5	1.5	0.0
3 18 2003	9	UB204	5.6	9.42	58	56	4.4%	1.7	1.9	10.0	5.5	6.3	0.8	1.5	1.6	0.0
3 18 2003	10	UB205	5.5	11.53	94	85	12.6%	2.0	1.8	15.4	7.1	11.5	0.9	1.9	2.5	0.0
3 18 2003	11	UB205	5.5	11.53	94	86	13.6%	1.8	2.0	15.3	7.2	11.8	1.0	2.0	2.5	0.0
3 18 2003	12	UC101	5.8	10.65	57	58	4.9%	1.8	2.1	9.0	7.1	6.7	0.9	1.4	1.6	0.0
3 18 2003	13	UC102	5.6	8.19	69	63	12.1%	1.9	1.7	9.3	6.9	5.9	2.2	2.3	2.0	0.0
3 18 2003	1	UC201	7.5	11.56	224	214	2.8%	12.6	2.0	50.3	10.1	41.5	1.2	1.8	0.7	0.1
3 18 2003	2	UC202	7.2	11.96	183	179	1.4%	10.4	0.0	47.2	2.5	29.1	1.7	2.6	1.9	0.0
3 18 2003	3	UC203	6.7	12.89	87	87	1.0%	7.5	0.0	16.1	7.3	11.2	3.7	1.2	1.2	0.1
3 18 2003	4	UC204	6.6	11.43	71	68	-0.3%	9.7	0.0	9.2	7.9	7.5	3.9	1.0	1.2	0.2
3 18 2003	5	UC205	6.3	8.30	93	84	0.6%	12.4	0.0	10.6	10.7	7.3	3.0	2.5	2.5	0.0
3 18 2003	57	West Weir	6.5	0.00	32	21186	2.9%	93.0	28.9	10724.3	55.4	7295.8	16.3	73.8	31.8	0.9
4 23 2003	61	AA	5.4	10.94	77	79	12.5%	1.5	0.0	11.0	12.2	8.5	1.2	2.1	3.1	0.1
4 23 2003	62	AB	5.5	11.86	82	na	na	na	0.0	13.5	10.8	10.4	0.6	1.4	3.0	0.1
4 23 2003	63	AC	5.4	13.90	150	152	7.0%	1.5	0.0	39.3	4.4	24.9	0.6	1.7	2.8	0.1
4 23 2003	64	AD	6.3	3.74	159	156	17.0%	28.9	0.0	22.4	6.9	28.5	0.2	3.4	4.2	0.2
4 23 2003	65	AE	6.3	4.17	587	587	6.4%	16.7	0.0	171.9	4.3	119.6	1.2	7.9	3.7	0.4
4 23 2003	66	AE	6.3	4.17	557	594	6.1%	16.0	0.0	171.9	4.2	120.2	1.2	6.6	3.5	0.4
4 23 2003	67	AF	6.4	2.55	235	242	8.3%	11.7	0.0	62.3	2.9	33.3	1.1	6.8	6.8	0.4
4 23 2003	68	AG	6.3	0.57	522	511	7.0%	27.7	0.0	140.5	4.9	102.5	2.5	6.6	4.3	1.6
4 23 2003	69	AH	6.5	0.47	812	762	5.4%	26.6	0.0	230.6	3.3	155.7	1.6	7.9	7.2	0.7
4 23 2003	83	AI	6.4	8.00	267	277	6.8%	17.6	0.0	69.6	5.8	42.7	0.6	4.3	7.7	0.1
4 23 2003	84	AJ	6.0	9.05	118	120	6.9%	15.8	0.0	23.5	4.1	12.1	1.1	5.1	4.3	0.0
4 23 2003	70	AK1	6.4	2.85	114	111	3.6%	14.4	0.0	19.0	8.4	12.7	0.5	5.5	2.2	7.6
4 23 2003	71	AL	6.4	0.43	900	855	5.7%	22.2	0.0	262.3	6.2	193.0	1.5	8.4	5.3	2.2
4 23 2003	72	AM	6.5	6.62	523	521	11.0%	48.2	0.0	125.9	8.8	69.0	2.2	17.3	20.9	0.1
4 23 2003	85	AN	6.1	11.76	131	135	9.5%	15.2	0.0	19.1	15.2	18.8	1.0	4.1	3.6	0.0
4 23 2003	86	AO	5.6	2.77	758	743	3.6%	6.4	3.5	234.4	5.2	95.3	2.1	25.2	23.5	8.9
4 23 2003	87	AP	6.1	11.70	402	402	6.4%	22.4	0.0	106.3	6.9	60.1	1.3	9.4	10.6	0.9
4 23 2003	73	AQ	6.3	9.34	165	174	4.5%	8.9	0.0	42.1	6.1	25.2	1.2	4.7	2.9	0.1
4 23 2003	74	AR	5.4	2.74	148	146	10.8%	2.5	0.0	35.1	4.7	15.0	0.9	7.0	4.5	0.5
4 23 2003	75	AS	6.7	0.34	1365	1242	4.5%	52.0	0.0	395.0	5.3	274.4	2.8	11.7	8.0	1.0
4 23 2003	76	AT	6.7	0.81	613	594	7.1%	64.0	0.0	148.7	9.7	97.0	1.8	14.3	13.8	4.7
4 23 2003	77	AT	6.7	0.81	613	597	7.2%	65.8	0.0	148.4	9.5	97.6	1.8	14.5	16.0	4.6
4 23 2003	78	AU	6.4	0.90	69	75	4.0%	10.0	0.0	13.7	4.2	9.3	0.9	2.1	1.9	0.1
4 23 2003	80	AV	6.4	7.68	129	137	13.1%	15.1	0.0	20.8	8.6	24.1	0.9	1.9	1.9	0.2
4 23 2003	94	AW	6.4	2.15	68	72	-3.4%	13.9	0.0	12.6	4.1	8.7	1.0	1.7	1.7	0.0
4 23 2003	81	AX	6.2	8.31	81	83	14.1%	4.2	0.0	16.9	3.6	10.8	1.1	1.8	2.9	0.0
4 23 2003	82	AY	6.1	0.76	740	729	6.8%	21.7	0.0	205.4	16.6	116.9	2.0	15.8	19.6	0.0
4 23 2003	95	AZ	5.1	10.35	84	82	9.3%	0.9	0.0	17.1	6.1	9.8	1.2	2.5	2.1	0.0
4 23 2003	96	BA	5.5	1.94	83	83	10.1%	2.4	0.0	15.3	8.2	12.3	1.2	1.7	1.6	0.0
4 23 2003	97	BB	5.6	3.77	64	64	10.4%	3.5	0.0	11.5	5.0	9.3	1.0	1.1	1.5	0.0
4 23 2003	107	BC	6.1	1.80	67	73	4.3%	6.4	0.0	14.4	4.5	11.1	1.0	1.5	1.0	0.0
4 23 2003	108	BCa	6.7	0.58	1907	1745	7.2%	33.5	22.5	579.1	0.8	368.2	2.2	34.5	26.2	13.8
4 23 2003	109	BCb	7.2	0.44	1314	1265	4.4%	98.7	24.1	378.4	0.6	278.5	1.6	12.3	13.5	2.8
4 23 2003	110	BCb	7.2	0.44	1314	1243	2.7%	97.9	25.2	376.2	0.5	266.6	1.6	12.6	13.1	2.8
4 23 2003	111	BCc	7.2	0.43	992	955	10.2%	18.1	0.0	295.9	0.6	222.3	1.0	7.5	6.7	2.2
4 23 2003	112	BCd	7.0	0.36	491	459	3.7%	39.1	2.9	135.4	0.3	102.4	0.8	2.9	3.0	3.4
4 23 2003	113	BCe	6.2	0.33	957	933	7.2%	17.3	23.1	276.4	9.4	203.3	1.7	8.3	7.6	13.6
4 23 2003	114	BCf	6.6	0.29	2727	2637	13.6%	37.0	0.0	897.6	0.0	640.6	3.2	47.2	45.7	9.3
4 23 2003	115	BCg	7.1	0.31	341	350	6.5%	41.2	0.0	85.9	1.8	75.5	0.5	1.5	2.4	1.0
4 23 2003	116	BCh	7.2	0.34	481	477	4.0%	71.1	0.0	118.4	0.5	104.2	0.7	1.9	3.0	1.0
4 23 2003	118	BCj	6.6	0.31	1711	1563	2.5%	38.2	4.4	532.3	2.6	303.6	1.3	29.6	24.3	31.3
4 23 2003	88	BD	6.6	0.30	2593	2370	3.7%	45.4	0.0	838.8	0.9	498.0	2.1	33.3	35.4	6.3
4 23 2003	89	BE	6.6	0.31	3179	2764	2.8%	50.2	61.6	1009.4	1.5	575.8	1.8	62.0	47.7	17.9
4 23 2003	90	BE	6.6	0.31	3179	2775	2.6%	52.3	62.0	1014.0	1.7	578.1	1.8	61.6	47.9	17.5
4 23 2003	28	BF	6.5	1.11	1913	1739	1.6%	37.6	0.0	591.9	22.7	394.4	2.3	10.5	7.6	0.3
4 23 2003	29	BG	6.6	2.73	336	327	3.2%	53.7	0.0	67.8	11.8	40.3	1.1	10.4	11.5	10.2
4 23 2003	30	BH	6.6	0.97	59	69	-9.9%	16.5	0.0	10.8	5.2	7.5	0.8	1.3	1.7	0.0
4 23 2003	31	BI	5.9	8.05	95	95	10.9%	4.6	0.0	18.9	5.9	13.4	1.2	2.1	2.4	0.0
4 23 2003	32	BJ	6.2	1.54	430	409	8.1%	27.3	0.0	100.4	13.0	65.9	1.3	7.1	9.6	2.0
4 23 2003	33	BJ	6.2	1.54	420	411	7.8%	28.2	0.0	100.7	13.4	68.1	1.3	8.0	9.6	2.1
4 23 2003	34	BK	6.4	1.80	73	79	0.6%	8.5	0.0	15.6	4.7	9.6	1.0	1.7	1.9	0.0
4 23 2003	35	BL	6.2	4.60	307	304	6.5%	16.0	0.0	71.0	16.5	53.5	1.2	3.5	5.4	0.0
4 23 2003	36	BM	5.9	2.09	112	116	3.7%	6.6	0.0	25.6	5.4	18.2	1.0	1.4	1.9	0.1
4 23 2003	37	BMa	6.2	0.45	885	809	7.8%	35.0	0.0	232.7	10.0	121.0	1.4	27.7	23.2	7.0
4 23 2003	38	BMb	6.4	0.37	917	852	4.3%	47.5	0.0	253.0	6.2	124.9	2.5	28.4	23.0	16.1
4 23 2003	39	BMc	6.6	0.35	418	388	0.0%	39.8	0.0	103.7	3.2	56.3	1.2	9.2	8.6	16.0

Plymouth Well Sampling Summary

Updated 38519.0 SVK

NM = not measured BDL = below detection limit
NS = not sampled DND = did not detect
if listed as 0: below 1, rounded, but above detection limit

Sample Date	Sample ID	Borehole ID	pH	DO (mg/L)	Measured Conductivity (mS/cm)	Calc Conductivity (mS/cm)	Net Charge	HCO_3^- Conc. (mg/L)	Acetate Conc. (mg/L)	Cl^- Conc. (mg/L)	SO_4^{-2} Conc. (mg/L)	Na^+ Conc. (mg/L)	K^+ Conc. (mg/L)	Ca^{+2} Conc. (mg/L)	Mg^{+2} Conc. (mg/L)	Fe^{+2} Conc. (mg/L)
4 23 2003	40	BMd	6.7	0.33	202	207	0.6%	30.6	0.0	46.8	4.0	33.0	0.9	3.9	3.4	2.7
4 23 2003	41	BMe	6.1	0.33	347	345	2.5%	18.0	0.0	95.6	4.8	53.3	1.5	6.3	7.1	2.8
4 23 2003	42	BMf	4.8	0.33	916	836	-0.6%	1.4	0.0	277.5	7.3	142.9	3.1	9.8	13.8	1.5
4 23 2003	43	BMg	5.3	3.81	398	395	5.1%	2.8	0.0	116.6	4.0	65.7	2.5	5.6	7.1	0.7
4 23 2003	44	BMg	5.3	3.81	398	396	5.0%	2.5	0.0	116.7	4.2	65.7	2.5	5.6	7.1	1.0
4 23 2003	45	BMh	5.6	5.04	73	73	10.5%	3.3	0.0	12.6	7.3	11.8	0.9	1.1	1.3	0.0
4 23 2003	46	BN	6.6	0.35	1502	1361	5.2%	83.3	9.7	423.2	1.1	270.4	1.3	31.8	19.3	5.3
4 23 2003	47	BO	6.3	1.50	107	115	0.7%	11.2	0.0	26.2	4.2	16.4	1.3	1.6	2.4	0.0
4 23 2003	48	BOa	6.3	0.49	720	676	4.6%	18.5	0.0	204.4	4.2	112.8	2.3	14.1	13.2	7.1
4 23 2003	49	BOb	6.7	0.36	453	433	4.5%	35.9	0.0	115.7	1.2	74.3	1.3	8.4	7.2	5.2
4 23 2003	50	BOc	6.9	0.34	292	282	4.2%	35.8	0.0	69.3	0.5	55.4	0.9	1.9	3.0	3.0
4 23 2003	51	BOd	6.7	0.33	645	606	3.5%	12.8	0.0	187.2	1.7	116.8	1.2	5.4	6.6	8.2
4 23 2003	52	BOe	6.9	0.32	263	254	4.2%	27.5	0.0	63.9	0.5	52.3	0.8	0.9	1.5	3.8
4 23 2003	53	BOf	6.9	0.32	266	258	3.5%	27.3	0.0	64.8	1.9	51.2	0.9	1.7	1.8	4.0
4 23 2003	54	BOg	6.8	0.31	302	300	2.4%	21.2	0.0	81.9	1.5	55.8	1.3	1.6	1.8	2.8
4 23 2003	55	BOg	6.8	0.31	302	304	1.3%	20.4	0.0	81.2	6.1	58.9	1.3	1.6	1.8	2.8
4 23 2003	56	BOh	6.5	0.31	266	269	2.5%	16.0	0.0	67.8	9.7	52.2	1.6	1.5	1.4	0.2
4 23 2003	57	BP	6.6	0.31	483	460	3.8%	18.4	0.0	134.7	1.3	91.9	1.0	2.6	3.7	5.4
4 23 2003	58	BQ	6.4	3.56	71	78	2.1%	11.1	0.0	14.0	4.6	9.5	1.1	1.4	2.3	0.1
4 23 2003	59	BR	5.7	0.93	92	94	8.6%	3.7	0.0	21.0	4.3	13.2	1.2	1.9	2.3	0.1
4 23 2003	60	BS	6.0	1.11	58	60	12.5%	4.8	0.0	10.0	4.7	7.6	0.8	2.1	1.7	0.0
4 23 2003	16	BTa	6.5	1.11	2113	1835	3.4%	143.7	47.0	556.9	0.6	373.2	2.6	45.7	33.5	9.9
4 23 2003	17	BTb	6.8	0.73	2734	2353	2.2%	193.4	164.9	758.4	0.5	452.2	3.3	61.6	52.0	22.4
4 23 2003	18	BTc	6.9	1.00	2010	1810	2.2%	150.1	105.0	547.8	0.6	347.4	2.7	43.7	39.5	20.2
4 23 2003	19	BTd	6.9	1.98	1473	1342	0.9%	104.1	90.4	391.9	0.3	252.8	2.2	25.8	25.3	18.8
4 23 2003	20	BTe	6.9	0.71	760	703	-0.2%	60.5	1.4	207.4	0.9	126.3	1.6	8.9	10.7	15.8
4 23 2003	21	BTf	6.9	1.04	435	409	1.8%	48.2	0.0	103.1	6.8	77.8	1.0	4.6	4.2	8.3
4 23 2003	22	BTf	6.9	1.04	435	410	2.2%	48.8	0.0	102.7	6.7	78.7	1.1	4.2	4.3	8.3
4 23 2003	23	BTg	6.5	1.11	351	331	0.1%	39.2	0.0	87.3	5.0	57.7	1.8	3.4	4.1	11.3
4 23 2003	24	BTh	6.4	0.93	756	658	-4.5%	23.9	0.0	214.4	4.9	87.4	3.9	14.7	16.4	33.7
4 23 2003	25	BTi	6.3	1.03	729	670	-4.2%	16.8	0.0	221.1	1.1	107.6	3.3	7.8	10.4	14.5
4 23 2003	26	BTj	5.2	1.11	2231	1984	2.3%	6.5	0.0	720.4	4.1	371.3	8.1	33.4	42.0	5.5
4 23 2003	27	BTk	6.6	1.23	1484	1351	3.3%	62.1	4.6	442.2	1.3	233.4	3.4	33.6	31.6	9.1
4 23 2003	91	BU	7.2	5.72	117	117	6.6%	17.2	0.0	19.0	8.8	21.2	1.0	2.0	1.1	0.0
4 23 2003	92	BX	7.0	0.41	104	102	-0.1%	33.9	2.1	10.7	5.0	9.7	1.4	5.1	3.4	1.5
4 23 2003	93	BY	6.6	8.00	142	153	4.5%	12.0	0.0	36.7	2.7	15.2	1.5	5.6	5.3	0.0
4 23 2003	120	BZ	6.6	0.99	1256	1235	3.0%	45.8	7.8	392.9	2.5	183.7	2.4	41.2	38.4	15.5
4 23 2003	101	CA	6.1	3.18	175	173	18.6%	27.7	0.0	25.5	8.1	19.5	0.9	6.6	9.2	0.0
4 23 2003	102	CB	6.5	1.46	1140	1099	7.6%	75.5	3.6	318.3	8.7	196.3	2.4	27.0	27.2	1.8
4 23 2003	103	CC	6.0	4.25	69	73	7.7%	9.3	0.0	13.1	4.6	10.6	0.9	1.7	1.8	0.0
4 23 2003	104	CD	6.5	1.62	1497	1450	-1.4%	50.7	9.1	445.3	83.1	252.9	1.8	29.6	28.1	23.5
4 23 2003	105	East Weir	6.9	0.00	318	334	3.8%	30.4	0.0	86.6	2.9	64.8	1.2	4.4	2.1	0.0
4 23 2003	119	ST	7.0	0.41	147	156	3.1%	34.6	0.0	28.2	3.9	29.7	0.9	1.7	1.6	0.1
4 23 2003	14	UB101	6.3	10.45	62	65	-1.0%	6.3	0.0	11.1	7.1	7.7	0.9	1.4	1.5	0.1
4 23 2003	15	UB102	5.8	10.13	50	52	4.5%	3.0	0.0	8.8	5.6	6.1	0.8	1.2	1.3	0.0
4 23 2003	1	UB201	6.1	9.87	329	328	3.5%	5.1	0.0	94.4	4.8	60.3	1.4	3.5	2.6	0.1
4 23 2003	2	UB202	5.7	10.00	245	245	4.1%	2.7	0.0	70.6	1.7	39.0	2.4	4.2	3.4	0.2
4 23 2003	3	UB203	5.9	9.36	65	65	5.6%	4.0	0.0	12.0	6.6	9.6	3.2	0.8	0.8	0.0
4 23 2003	4	UB204	5.8	7.52	67	65	14.6%	4.8	0.0	8.1	8.0	8.2	4.1	1.1	1.4	0.0
4 23 2003	5	UB205	5.6	4.79	88	85	17.9%	4.7	0.0	10.7	10.3	7.4	4.9	3.7	3.3	0.0
4 23 2003	12	UC101	6.7	10.19	55	60	-3.4%	9.8	0.0	9.0	6.2	6.6	0.9	1.3	1.6	0.0
4 23 2003	13	UC102	6.2	8.96	56	60	2.1%	6.3	0.0	8.4	7.6	4.6	2.0	2.2	1.9	0.0
4 23 2003	6	UC201	6.3	10.56	323	319	1.5%	7.2	0.0	87.5	10.6	37.5	1.0	5.0	1.7	0.0
4 23 2003	7	UC202	5.5	10.20	159	169	3.7%	1.7	0.0	50.9	5.7	31.5	1.3	2.5	2.1	0.1
4 23 2003	8	UC203	5.7	10.32	49	51	4.0%	2.2	0.0	9.2	5.5	5.8	0.8	1.2	1.3	0.0
4 23 2003	9	UC204	5.5	10.43	49	50	7.1%	1.6	0.0	8.9	5.3	5.8	0.8	1.2	1.3	0.0
4 23 2003	10	UC205	5.4	8.32	91	88	15.6%	2.2	0.0	16.2	7.0	12.3	1.0	2.0	2.6	0.0
4 23 2003	11	UC205	5.4	8.32	91	87	13.8%	2.1	0.0	16.4	7.2	12.0	0.9	1.9	2.6	0.0
4 23 2003	106	West Weir	7.0	6.45	932	837	4.9%	34.1	0.0	274.1	6.5	194.2	0.9	8.9	4.6	0.0
5 23 2003	79	AA	6.1	11.34	174	157	-2.3%	32.3	0.5	37.6	9.0	20.4	0.3	2.6	5.0	0.3
5 23 2003	80	AB	5.6	10.98	125	N/A	N/A	6.4	0.3	28.3	10.9	NA	NA	NA	NA	NA
5 23 2003	81	AB	5.6	10.98	125	114	-11.3%	4.8	0.6	26.7	10.8	13.3	1.1	1.7	1.9	0.1
5 23 2003	89	AC	6.9	14.78	180	171	-13.8%	34.5	0.4	38.2	6.3	20.7	0.6	3.1	3.4	0.2
5 23 2003	32	AD	NA	3.30	NA	197	14.2%	0.0	0.5	45.7	8.4	27.4	0.5	4.1	7.2	1.9
5 23 2003	28	AE	6.1	1.65	383	431	14.9%	21.3	0.3	107.8	4.9	95.9	1.3	4.1	2.2	0.3
5 23 2003	29	AF	6.2	1.84	411	453	-17.8%	21.0	0.4	157.0	4.1	62.8	1.5	4.9	4.7	1.5
5 23 2003	23	AG	6.4	0.44	619	537	-11.2%	53.9	0.5	159.2	10.6	73.6	1.2	10.5	8.5	2.0
5 23 2003	20	AH	6.3	0.51	742	642	-25.2%	64.6	0.3	210.5	20.6	77.2	1.2	9.2	7.2	1.4
5 23 2003	101	AI	6.5	4.54	105	N/A	N/A	28.3	N/A	N/A	NA	NA	NA	NA	NA	NA
5 23 2003	55	AK	6.7	1.51	181	165	-14.5%	35.8	0.9	35.3	4.5	16.2	0.6	5.6	3.7	7.9
5 23 2003	[illegible]	AL	6.6	0.39	775	N/A	N/A	33.7	[illegible]	[illegible]	6.1	NA	NA	NA	NA	NA
5 23 2003	106	AM	6.3	4.36	811	N/A	N/A	39.7	N/A	N/A	NA	28.5	0.0	3.1	0.0	0.8
5 23 2003	102	AO	5.9	2.23	1289	N/A	N/A	12.0	N/A	N/A	NA	NA	NA	NA	NA	NA
5 23 2003	105	AP	6.0	10.08	617	597	-11.1%	22.2	0.4	168.0	47.1	65.9	1.8	11.3	5.9	5.7
5 23 2003	103	AQ	5.2	4.41	71	N/A	N/A	123.5	0.3	159.9	7.0	NA	NA	NA	NA	NA
5 23 2003	104	AQ	6.2	4.41	71	N/A	N/A	9.8	0.4	165.5	8.4	12.8	0.6	1.8	0.6	0.2
5 23 2003	[illegible]	AR	5.2	4.12	124	N/A	N/A	9.5	N/A	N/A	NA	27.3	1.1	0.3	0.3	0.1
5 23 2003	18	AS	6.8	0.51	496	450	-7.1%	96.6	0.5	109.3	3.8	88.5	1.0	2.7	1.4	0.6
5 23 2003	61	AT	6.6	1.10	906	753	-0.7%	47.0	1.8	224.7	11.7	118.9	2.0	8.5	19.8	7.1
5 23 2003	42	AU	5.7	1.58	76	71	-10.6%	4.7	0.4	16.3	5.3	8.8	0.7	1.1	0.9	0.0
5 23 2003	74	AV	7.3	6.90	104	96	-16.8%	33.5	0.5	19.0	3.5	16.0	0.8	0.1	0.2	0.1
5 23 2003	111	AW	5.8	0.79	160	N/A	N/A	2.5	0.2	13.2	4.7	NA	NA	NA	NA	NA
5 23 2003	112	AW	5.3	0.79	160	N/A	N/A	2.1	0.4	11.8	5.4	NA	NA	NA	NA	NA
5 23 2003	75	AX	6.9	5.35	71	68	-22.1%	14.4	0.5	13.4	5.1	7.8	0.7	0.4	1.1	0.1

Plymouth Well Sampling Summary

Updated 35519.0 SVK

NM = not measured NS = not sampled

BDL = below detection limit, DND = did not detect

if listed as 0; below 1, rounded, but above detection limit

Sample Date	Sample ID	Borehole ID	pH	DO (mg/L)	Measured Conductivity (mS/cm)	Calc Conductivity (mS/cm)	Net Charge	HCO_3^- Conc. (mg/L)	Acetate Conc. (mg/L)	Cl^- Conc. (mg/L)	SO_4^{-2} Conc. (mg/L)	Na^+ Conc. (mg/L)	K^+ Conc. (mg/L)	Ca^{+2} Conc. (mg/L)	Mg^{+2} Conc. (mg/L)	Fe^{+2} Conc. (mg/L)
5 23 2003	76	AY	6.4	3.23	516	437	-5.3%	27.9	0.8	136.6	5.7	76.5	1.2	4.6	5.0	0.0
5 23 2003	113	AZ	5.6	9.21	76	53	NA	2.9	0.3	23.9	4.7	NA	NA	NA	NA	NA
5 23 2003	114	BA	5.4	7.62	70	75	+16.2%	1.9	0.2	18.0	5.1	11.1	1.1	0.0	0.0	0.6
5 23 2003	115	BB	5.4	0.11	70	63	+2.5%	3.0	0.1	13.4	5.5	3.3	0.8	1.0	1.0	0.2
5 23 2003	48	BC	5.6	4.52	69	64	+12.6%	5.1	0.2	13.7	5.9	9.0	0.6	0.7	0.3	0.0
5 23 2003	90	BCa	6.6	7.80	2817	2070	+16.7%	64.5	0.8	842.4	1.6	372.3	1.8	15.7	8.8	9.0
5 23 2003	91	BCa	6.5	3.21	2264	1694	NA	82.3	8.4	971.5	0.6	NA	NA	NA	NA	8.0
5 23 2003	92	BCb	6.5	3.43	3204	2558	-3.3%	83.0	8.4	973.1	0.7	528.2	2.6	35.6	28.1	7.9
5 23 2003	93	BCc	7.0	0.08	2222	1792	-6.2%	133.8	3.9	631.8	0.7	377.0	1.5	11.3	9.2	3.2
5 23 2003	95	BCd	6.9	0.11	1701	1429	NA	135.6	29.7	756.8	0.5	NA	NA	NA	NA	2.9
5 23 2003	94	BCe	7.3	0.00	1219	953	+13.2%	160.4	12.7	309.0	1.2	192.5	0.7	1.7	2.6	1.3
5 23 2003	96	BCf	7.5	0.00	783	678	-5.7%	88.8	1.2	195.8	0.8	141.2	0.6	1.6	0.6	1.1
5 23 2003	97	BCg	7.2	0.00	933	721	-18.3%	129.3	0.6	221.0	0.5	130.0	1.2	2.0	0.0	6.6
5 23 2003	98	BCh	6.8	0.54	4059	3034	-19.7%	89.2	32.5	1245.9	0.4	610.0	2.6	30.7	22.6	10.7
5 23 2003	99	BCi	7.0	0.03	1528	1280	-3.8%	105.9	19.0	412.7	0.4	242.7	1.3	20.5	13.2	6.2
5 23 2003	100	BCj	7.6	0.02	214	196	-6.5%	67.3	0.5	29.9	6.5	49.5	0.3	0.7	0.2	0.7
5 23 2003	87	BD	6.0	0.00	3501	2732	-1.5%	69.3	11.1	1053.3	0.6	649.8	2.0	16.3	14.2	3.2
5 23 2003	88	BE	7.7	0.35	124	137	NA	57.5	0.6	19.3	3.7	32.2	0.4	NA	NA	0.0
5 23 2003	45	BF	5.8	4.59	121	101	1.4%	5.2	0.3	23.9	1.8	17.8	0.7	1.1	0.4	0.0
5 23 2003	46	BF	5.8	4.55	121	102	2.1%	3.7	0.2	25.3	1.3	16.0	0.6	1.3	0.5	0.0
5 23 2003	24	BG	6.5	0.67	444	370	+18.9%	46.0	0.4	103.0	16.0	37.0	0.8	8.4	8.2	20.0
5 23 2003	25	BH	6.3	0.73	66	63	+34.3%	14.9	0.3	13.0	5.3	6.0	0.5	0.7	0.6	0.0
5 23 2003	26	BI	5.8	7.41	131	113	-5.7%	6.4	0.4	25.7	8.8	17.7	1.0	1.0	0.8	0.0
5 23 2003	77	BJ	6.8	4.51	188	166	-5.6%	31.0	0.3	30.9	11.8	30.6	0.8	0.7	0.6	0.6
5 23 2003	108	BK	5.4	2.11	82	NA	NA	5.3	NA	NA	NA	9.6	0.9	0.0	0.0	1.5
5 23 2003	78	BL	5.8	2.59	813	708	+4.3%	6.8	2.7	236.5	3.4	83.9	2.0	17.2	21.6	0.2
5 23 2003	50	BM	5.7	0.00	79	75	-14.1%	8.7	9.4	17.4	4.6	10.7	0.7	0.6	0.5	0.0
5 23 2003	51	BMa	6.1	0.45	1138	869	NA	7.3	0.4	352.8	3.3	135.0	2.3	NA	NA	25.9
5 23 2003	52	BMb	6.2	0.38	675	573	+12.8%	41.9	0.5	134.6	4.3	77.0	2.3	10.0	8.8	18.2
5 23 2003	53	BMc	6.3	0.34	801	679	-2.7%	26.4	0.4	204.7	19.1	124.6	2.2	5.9	6.0	18.3
5 23 2003	54	BMd	6.4	3.45	189	193	+24.6%	52.4	0.3	42.7	8.0	25.2	1.2	2.1	1.5	0.0
5 23 2003	55	BMe	6.1	4.40	142	133	-9.1%	15.9	0.3	29.7	8.5	20.3	0.9	1.4	1.1	0.1
5 23 2003	56	BMf	6.0	5.42	112	99	+10.0%	10.3	0.4	22.1	6.7	14.8	0.7	0.9	0.8	0.0
5 23 2003	57	BMf	6.0	5.42	112	101	+3.6%	8.1	0.4	22.2	6.6	16.1	1.1	1.0	0.8	0.0
5 23 2003	58	BMg	5.9	4.88	82	74	+11.7%	7.2	0.3	15.3	7.0	10.4	0.7	0.7	0.6	0.5
5 23 2003	59	BMh	5.6	3.82	93	85	-8.1%	3.8	0.3	19.8	6.9	12.4	0.8	0.9	0.6	0.0
5 23 2003	60	BN	6.3	0.45	332	316	24.4%	11.6	0.4	20.2	4.4	65.8	0.4	9.9	3.9	7.9
5 23 2003	29	BO	6.0	3.29	94	78	NA	10.5	0.3	20.3	5.1	10.0	0.8	NA	NA	0.0
5 23 2003	30	BOa	6.3	0.35	510	438	+4.5%	22.6	0.3	134.3	1.7	71.8	1.5	6.4	4.4	3.7
5 23 2003	31	BOb	5.6	2.37	349	187	NA	34.1	0.4	78.8	5.3	NA	NA	NA	NA	NA
5 23 2003	32	BOc	5.6	0.35	357	237	NA	32.8	9.3	82.0	3.4	35.8	0.6	NA	NA	4.4
5 23 2003	33	BOc	6.6	0.35	357	298	+6.6%	32.3	0.2	82.0	3.3	47.1	0.7	3.8	3.6	5.2
5 23 2003	34	BOd	6.7	0.40	456	355	+5.1%	37.4	0.4	108.9	7.9	67.8	0.8	4.5	3.5	3.1
5 23 2003	35	BOe	6.8	0.35	249	222	+11.8%	48.5	0.3	49.7	6.3	39.2	0.6	1.0	0.9	4.4
5 23 2003	36	BOf	6.8	0.38	242	209	-9.8%	41.4	0.4	45.1	8.7	35.8	0.8	1.6	1.2	4.0
5 23 2003	37	BOg	6.1	2.0	197	168	NA	19.9	0.3	41.5	3.7	32.9	0.7	NA	NA	1.3
5 23 2003	38	BOh	6.5	1.30	234	211	+9.6%	21.6	0.2	56.8	5.3	38.2	0.7	0.3	0.1	0.0
5 23 2003	40	BP	6.3	0.37	838	665	-5.9%	29.3	0.4	217.6	4.0	97.0	1.3	11.7	12.2	18.9
5 23 2003	27	BQ	5.6	3.15	72	70	+7.6%	4.6	0.6	14.9	6.0	8.8	0.7	0.9	1.1	0.0
5 23 2003	19	BR	6.5	1.60	69	82	NA	14.4	0.3	20.1	4.8	10.7	1.1	NA	NA	0.0
5 23 2003	110	BS	6.8	1.72	63	73	-16.0%	17.8	0.7	11.7	5.9	8.0	0.8	1.8	1.1	0.1
5 23 2003	63	BTa	6.9	0.35	875	721	-2.4%	94.0	0.6	205.0	0.4	140.2	1.1	4.2	8.0	2.5
5 23 2003	63	BTb	6.5	0.26	1190	988	NA	112.3	0.6	363.2	0.4	159.1	NA	NA	NA	4.4
5 23 2003	64	BTc	6.9	0.29	1151	955	-2.4%	43.4	1.6	313.9	0.4	179.5	1.3	10.9	9.3	5.6
5 23 2003	65	BTd	7.0	0.24	721	691	+5.2%	78.7	0.4	172.1	0.7	116.8	1.0	2.0	4.3	4.7
5 23 2003	65	BTe	6.7	0.26	1192	978	-6.0%	30.2	0.8	333.5	5.7	164.2	2.0	17.2	10.3	28.8
5 23 2003	67	BTf	6.6	0.26	996	820	-3.3%	25.9	0.6	276.7	8.7	143.1	2.2	7.2	6.0	21.7
5 23 2003	68	BTg	6.5	0.23	1160	844	NA	26.1	0.6	335.0	4.5	122.8	NA	NA	NA	22.8
5 23 2003	69	BTg	6.5	0.23	1163	912	+17.2%	28.1	0.6	335.3	4.5	126.3	3.0	5.1	15.5	22.6
5 23 2003	70	BTh	6.4	0.23	938	785	-8.4%	30.7	0.5	263.3	5.5	121.7	3.1	10.9	10.9	14.8
5 23 2003	71	BTi	6.8	4.39	135	127	+14.4%	19.7	0.7	29.9	3.4	19.2	1.1	0.7	0.8	0.2
5 23 2003	72	BTj	6.1	0.18	459	451	+5.1%	13.3	0.4	142.4	3.3	82.7	1.8	1.8	1.9	0.7
5 23 2003	73	BTk	7.1	5.20	765	655	-6.2%	112.0	0.5	179.6	0.6	126.6	1.1	5.0	4.1	3.7
5 23 2003	47	BU	5.9	0.92	243	198	NA	3.4	0.3	49.5	17.0	34.5	1.0	NA	NA	0.0
5 23 2003	49	BX	6.5	0.06	109	81	8.6%	12.4	0.3	12.8	4.4	8.4	1.0	5.0	1.8	1.4
5 23 2003	16	BY	5.6	0.00	124	134	12.3%	5.5	0.2	20.8	16.5	22.0	4.1	2.1	1.8	0.0
5 23 2003	17	BZ	6.5	0.00	957	815	+1.5%	121.4	0.3	210.0	24.6	126.6	2.1	22.1	17.9	27.5
5 23 2003	83	CA	6.2	2.95	218	200	-0.1%	34.5	0.4	39.4	8.5	20.3	0.9	5.9	8.1	0.2
5 23 2003	109	CB	5.8	1.32	668	459	NA	12.3	0.3	145.1	10.9	78.7	1.7	NA	NA	1.6
5 23 2003	84	CC	6.1	2.15	76	75	+10.4%	11.1	0.3	15.1	5.2	9.8	0.9	1.2	1.0	0.0
5 23 2003	85	CD	0.0	0.37	374	281	12.5%	0.0	0.5	72.7	7.3	45.8	0.9	6.2	6.4	12.6
5 23 2003	118	Field Blank	NM	NM	NA	NA	NS	BDL	NA	NA	NA	1.2	0.1	0.0	0.0	0.2
5 23 2003	21	ST	6.4	3.07	131	104	+22.1%	15.3	0.2	25.1	4.7	10.5	0.8	0.7	2.3	0.2
5 23 2003	22	ST	6.4	3.37	131	72	+23.8%	15.3	0.3	25.5	4.8	0.0	0.9	0.1	0.1	0.0
5 23 2003	14	UB101	5.5	8.49	61	56	+9.5%	1.8	0.3	11.6	6.7	7.2	0.7	0.8	0.5	0.0
5 23 2003	15	UB102	5.5	8.55	58	34	NA	3.4	0.3	11.2	5.5	NA	NA	NA	NA	NA
5 23 2003	6	UB201	5.2	8.69	415	275	NA	3.3	0.3	128.5	16.1	NA	NA	NA	NA	NA
5 23 2003	7	UB202	5.1	7.93	187	163	-9.9%	0.9	0.2	48.7	4.9	23.7	1.0	2.5	0.9	0.0
5 23 2003	8	UB203	5.5	7.77	53	42	+22.4%	1.6	0.3	9.3	5.6	5.6	0.6	BDL	BDL	0.0
5 23 2003	9	UB204	5.4	7.60	52	46	+11.3%	1.5	0.3	9.5	5.5	5.6	0.6	0.9	0.3	0.0
5 23 2003	10	UB205	5.4	6.13	99	84	5.0%	2.2	0.3	17.4	6.6	12.1	1.3	1.6	1.2	0.1
5 23 2003	11	UB205	5.4	6.13	99	79	-3.8%	2.0	0.3	17.9	6.8	11.3	0.7	1.3	0.7	0.0
5 23 2003	12	UC101	5.7	8.99	59	56	-5.5%	3.2	0.3	10.3	6.9	7.0	0.8	1.2	0.6	0.9
5 23 2003	13	UC102	5.5	7.28	61	77	30.0%	2.7	0.2	9.8	7.1	8.0	1.7	2.7	4.3	0.0
5 23 2003	1	UC201	5.6	8.34	323	185	NA	2.4	0.4	88.6	5.9	NA	NA	NA	NA	NA

Plymouth Well Sampling Summary

Updated 38519.0 SVK

NM = not measured
NS = not sampled
BDL = below detection limit
DND = did not detect
if listed as 0; below 1, rounded, but above detection limit

Sample Date	Sample ID	Borehole ID	pH	DO (mg/L)	Measured Conductivity (mS/cm)	Calc Conductivity (mS/cm)	Net Charge	HCO_3^- Conc. (mg/L)	Acetate Conc. (mg/L)	Cl^- Conc. (mg/L)	SO_4^{-2} Conc. (mg/L)	Na^+ Conc. (mg/L)	K^+ Conc. (mg/L)	Ca^{+2} Conc. (mg/L)	Mg^{+2} Conc. (mg/L)	Fe^{+2} Conc. (mg/L)
5/23/2003	2	UC102	5.4	7.91	373	139	N/A	15.5	6.2	66.9	2.0	19.1	1.6	N/A	N/A	0.0
5/23/2003	3	UC103	5.5	7.44	86	89	-3.7%	1.7	0.3	15.2	6.4	11.2	3.4	0.8	0.2	0.0
5/23/2003	4	UC104	5.5	5.78	81	61	N/A	3.3	3.3	11.4	7.9	8.4	3.2	N/A	N/A	0.0
5/23/2003	5	UC205	5.4	9.02	95	103	-27.9%	3.3	BDL	18.8	21.5	7.1	3.5	1.8	1.1	0.0
6/15/2003	51	AA	5.8	9.40	72	69	-6.6%	4.4	0.5	11.1	10.3	5.9	0.9	2.4	1.7	0.2
6/15/2003	52	AB	5.9	8.91	75	N/A	N/A	4.6	3.3	9.8	N/A	7.5	0.7	2.3	1.1	0.1
6/15/2003	53	AC	5.7	9.51	70	65	+7.3%	4.1	0.3	12.5	8.7	9.0	0.4	1.2	0.7	0.1
6/15/2003	54	AD	5.8	3.81	140	N/A	N/A	16.2	1.9	21.4	N/A	17.9	0.3	4.6	2.3	0.1
6/15/2003	55	AD	5.8	3.81	140	135	-0.6%	16.4	0.3	25.4	10.6	17.9	0.3	4.5	2.2	0.1
6/15/2003	27	AE	7.0	1.20	222	217	-3.6%	31.1	0.6	52.3	3.9	40.6	0.6	0.8	1.4	0.3
6/15/2003	28	AF	6.7	0.47	440	N/A	N/A	30.0	0.9	120.4	N/A	69.8	1.6	5.3	4.7	1.6
6/15/2003	48	AG	6.8	0.55	339	337	+1.2%	44.8	0.4	82.0	3.0	45.3	1.1	6.9	8.0	0.9
6/15/2003	49	AH	6.7	0.52	372	331	+1.9%	53.2	0.6	148.2	5.2	82.9	1.4	10.4	9.9	1.9
6/15/2003	107	AI	6.5	5.87	123	108	5.7%	23.4	0.7	13.9	8.7	22.7	0.2	0.5	0.3	0.0
6/15/2003	108	AJ	6.0	5.52	335	316	0.2%	7.2	0.6	95.1	3.6	39.5	1.9	7.5	9.5	2.0
6/15/2003	67	AK	6.2	3.60	146	102	-0.3%	25.3	0.8	15.6	4.6	11.5	0.5	1.9	4.3	24.0
6/15/2003	29	AL	7.0	1.27	420	392	+1.1%	79.0	0.4	83.2	4.4	85.8	0.7	0.7	0.6	1.5
6/15/2003	68	AM	6.4	9.54	739	689	-0.3%	29.9	0.4	203.0	16.8	63.6	2.2	29.9	26.9	0.1
6/15/2003	109	AN	5.8	9.87	523	492	-0.1%	7.0	0.6	151.0	5.9	74.2	2.4	9.1	9.3	0.0
6/15/2003	110	AO	6.1	1.21	710	653	+1.0%	14.3	0.8	207.0	5.6	176.5	1.6	4.0	4.1	3.1
6/15/2003	111	AO	6.1	1.21	710	N/A	N/A	14.3	2.4	193.2	N/A	126.3	1.5	4.0	3.8	3.1
6/15/2003	112	AP	6.1	2.75	884	856	-0.5%	21.1	0.5	357.4	8.1	153.7	1.9	5.6	4.5	4.4
6/15/2003	113	AQ	6.3	8.70	85	82	-2.2%	7.9	0.5	15.0	8.0	13.2	0.6	0.6	0.9	0.0
6/15/2003	60	AR	5.8	1.54	216	205	-1.7%	7.1	2.4	53.1	8.7	24.0	1.1	4.8	5.7	3.1
6/15/2003	30	AS	7.1	0.77	205	155	1.5%	63.7	0.8	30.9	1.8	41.6	0.7	1.1	1.7	0.6
6/15/2003	47	AT	6.3	1.61	1214	1064	1.8%	73.3	0.5	323.2	11.4	181.6	2.4	22.6	22.7	4.8
6/15/2003	106	AU	6.5	2.15	81	81	-9.4%	8.7	0.3	16.8	6.4	9.1	0.9	1.6	1.6	0.0
6/15/2003	63	AV	5.8	0.83	266	N/A	N/A	4.6	2.0	63.0	N/A	25.2	2.0	8.3	7.1	0.1
6/15/2003	118	AW	6.3	0.88	74	N/A	N/A	8.9	2.3	13.0	N/A	8.8	0.9	1.4	1.4	0.0
6/15/2003	64	AX	6.0	6.42	67	65	-9.9%	4.2	0.5	12.8	8.6	7.8	0.8	1.5	0.9	0.1
6/15/2003	65	AY	6.1	7.50	634	N/A	N/A	12.1	1.7	161.5	N/A	81.7	1.4	14.5	11.8	0.1
6/15/2003	66	AY	6.1	7.50	634	587	-3.0%	11.7	0.4	184.3	9.5	82.8	1.4	14.8	10.9	0.1
6/15/2003	117	AZ	5.4	8.88	103	102	0.1%	1.3	0.5	24.6	6.2	11.5	1.4	2.0	2.6	0.0
6/15/2003	116	BA	5.5	9.84	83	76	-0.4%	2.2	0.3	13.9	9.8	9.9	1.0	1.2	1.4	0.0
6/15/2003	115	BB	5.8	0.72	72	69	-1.5%	4.2	0.2	14.1	5.7	8.7	0.9	1.5	1.2	0.0
6/15/2003	91	BC	6.4	2.04	73	65	2.4%	BDL	0.6	13.4	6.6	9.8	0.7	0.7	0.9	0.0
6/15/2003	92	BCa	7.3	0.48	1113	993	-0.3%	148.6	0.7	277.4	1.1	227.4	0.8	1.6	2.9	1.0
6/15/2003	93	BCb	7.2	0.27	1471	N/A	N/A	106.3	1.3	356.7	N/A	278.4	1.2	6.5	7.4	1.7
6/15/2003	94	BCc	7.1	0.35	932	808	8.4%	0.0	1.6	250.6	4.3	141.9	0.9	14.3	19.3	3.7
6/15/2003	95	BCd	7.1	0.34	928	N/A	N/A	102.1	1.5	225.0	N/A	150.4	0.9	13.2	16.4	4.3
6/15/2003	96	BCe	6.8	0.37	1575	1392	0.6%	120.8	0.6	442.9	1.9	219.7	1.3	30.6	43.4	14.7
6/15/2003	97	BCf	7.5	0.50	1435	N/A	N/A	137.2	2.3	359.4	N/A	303.0	0.8	2.0	2.3	0.8
6/15/2003	98	BCg	6.9	0.42	1789	1541	0.4%	129.7	0.3	499.6	1.7	253.9	2.0	33.6	44.0	14.4
6/15/2003	99	BCg	6.9	0.42	1789	1541	0.1%	133.5	0.3	500.0	0.9	253.4	2.0	33.6	43.7	14.8
6/15/2003	100	BCh	7.6	0.38	733	654	0.3%	142.9	0.9	154.5	0.8	152.1	0.6	0.7	1.3	0.3
6/15/2003	101	BCi	6.8	0.43	1235	N/A	N/A	88.7	7.4	308.9	N/A	200.6	1.4	18.1	20.7	19.8
6/15/2003	102	BCj	6.8	0.38	344	315	-1.7%	41.4	1.9	79.7	2.6	44.6	0.4	6.2	8.0	7.5
6/15/2003	103	BD	7.3	0.46	1457	1259	+1.1%	162.9	1.0	387.9	3.7	303.6	0.9	1.5	1.3	0.4
6/15/2003	104	BE	7.0	0.50	150	N/A	N/A	44.3	2.0	15.1	N/A	21.5	0.2	3.1	3.1	0.7
6/15/2003	85	BF	6.3	3.60	83	80	+4.5%	7.5	0.3	16.9	5.7	9.3	0.6	1.3	2.1	0.0
6/15/2003	87	BG	6.4	0.34	407	349	1.4%	25.0	0.5	91.7	7.8	44.6	1.1	10.5	9.3	13.0
6/15/2003	88	BG	6.4	0.34	407	N/A	N/A	26.0	1.6	84.5	N/A	44.6	1.0	10.7	10.0	12.6
6/15/2003	89	BH	6.4	2.70	70	N/A	N/A	0.0	0.6	13.4	5.9	N/A	N/A	N/A	N/A	0.0
6/15/2003	90	BI	6.0	9.74	165	N/A	N/A	4.1	5.7	33.7	N/A	24.5	1.3	1.6	1.6	0.0
6/15/2003	69	BJ	6.9	9.04	153	143	-3.4%	32.3	0.5	32.5	2.8	24.4	0.8	1.8	1.1	0.1
6/15/2003	50	BK	6.5	2.62	90	92	+7.0%	9.6	0.4	20.6	5.2	10.9	0.9	1.8	1.9	0.1
6/15/2003	70	BL	6.3	4.84	934	N/A	N/A	14.9	0.6	243.3	N/A	148.3	2.3	11.4	8.8	0.1
6/15/2003	34	BM	6.1	2.35	70	72	+10.2%	8.4	0.2	14.8	5.7	9.2	0.7	1.2	0.9	0.1
6/15/2003	35	BMa	6.4	0.74	642	565	+4.4%	29.8	0.7	175.0	4.1	81.4	2.3	11.2	10.9	22.0
6/15/2003	36	BMb	6.5	0.52	2042	1708	-4.0%	64.8	0.4	609.9	8.4	302.2	4.4	31.4	26.8	35.4
6/15/2003	37	BMc	6.5	0.60	1085	N/A	N/A	60.9	1.7	284.3	N/A	159.1	2.6	15.6	12.5	18.6
6/15/2003	38	BMd	6.6	7.17	143	142	+9.2%	22.8	0.4	26.8	12.3	21.7	1.1	1.4	1.4	0.5
6/15/2003	39	BMe	6.4	6.40	92	88	+7.6%	13.4	0.5	16.6	7.0	13.8	0.6	0.8	0.8	0.2
6/15/2003	40	BMf	6.1	7.30	86	80	+7.3%	8.4	0.3	16.0	6.9	11.2	0.6	1.1	1.0	0.1
6/15/2003	41	BMg	6.8	9.72	83	81	-8.5%	11.0	0.3	15.7	6.5	11.0	0.8	1.2	1.0	0.1
6/15/2003	42	BMh	6.1	5.71	99	100	+7.7%	8.2	0.4	22.1	7.7	14.5	0.9	1.1	1.0	0.1
6/15/2003	43	BN	6.5	0.69	892	N/A	N/A	34.8	2.7	214.0	N/A	113.6	1.6	11.1	19.0	36.3
6/15/2003	44	BN	6.5	0.69	892	783	+5.3%	37.9	0.5	253.2	6.3	114.1	1.6	11.1	19.1	35.0
6/15/2003	16	BO	5.9	0.11	84	82	-5.5%	6.3	0.3	18.8	4.8	10.5	1.0	1.6	1.2	0.1
6/15/2003	17	BOa	6.4	0.23	592	529	1.9%	49.4	0.6	146.6	6.9	95.6	2.0	6.7	6.7	5.6
6/15/2003	18	BOb	6.7	0.13	563	512	+1.1%	44.3	1.1	139.5	11.4	81.0	1.4	10.0	9.2	8.3
6/15/2003	19	BOc	6.7	0.15	687	603	+1.9%	38.2	0.5	173.4	3.7	95.7	1.4	12.2	10.9	13.8
6/15/2003	20	BOd	6.8	0.13	593	N/A	N/A	57.5	1.1	128.4	N/A	71.0	1.4	13.4	15.2	14.1
6/15/2003	21	BOe	6.8	0.27	808	N/A	N/A	95.7	2.6	164.3	N/A	105.2	1.8	14.3	13.7	29.7
6/15/2003	22	BOe	6.8	0.27	858	N/A	N/A	105.4	1.2	180.0	N/A	105.0	1.8	14.4	13.6	29.5
6/15/2003	23	BOf	6.7	0.26	1049	N/A	N/A	69.6	1.6	261.4	N/A	128.5	2.8	17.9	17.6	41.4
6/15/2003	24	BOg	6.6	0.20	254	243	-9.5%	31.5	0.3	63.0	5.7	34.0	1.3	3.7	3.5	6.6
6/15/2003	25	BOh	6.3	0.63	559	531	+4.0%	12.1	0.4	171.0	1.2	68.4	3.6	12.3	12.0	0.1
6/15/2003	26	BP	6.9	0.12	328	297	-1.3%	62.3	0.6	61.7	7.1	52.9	0.9	4.2	3.8	4.8
6/15/2003	61	BQ	5.9	5.55	72	70	-6.7%	3.7	0.6	15.2	5.8	8.2	0.8	1.7	0.9	0.1
6/15/2003	31	BR	6.3	1.30	82	85	+11.3%	8.9	0.3	18.3	6.6	9.6	0.9	1.7	1.4	0.1
6/15/2003	62	BS	6.0	2.84	64	N/A	N/A	4.7	2.3	10.9	N/A	7.2	0.8	1.4	1.6	0.1
6/15/2003	73	BTa	6.4	0.76	2402	2060	+1.8%	32.7	0.3	765.9	0.9	402.2	2.7	21.4	34.4	10.8
6/15/2003	74	BTb	6.7	0.67	3792	N/A	N/A	97.6	1.9	1119.4	N/A	676.4	3.0	32.3	35.2	12.8

Plymouth Well Sampling Summary

Updated 35519.0 SVK

NM - not measured
NS = not sampled
BDL = below detection limit,
DND = did not detect
if listed as 0; below 1, rounded, but above detection limit

Sample Date	Sample ID	Borehole ID	pH	DO (mg/L)	Measured Conductivity (mS/cm)	Calc Conductivity (mS/cm)	Net Charge	HCO_3^- Conc. (mg/L)	Acetate Conc. (mg/L)	Cl^- Conc. (mg/L)	SO_4^{-2} Conc. (mg/L)	Na^+ Conc. (mg/L)	K^+ Conc. (mg/L)	Ca^{+2} Conc. (mg/L)	Mg^{+2} Conc. (mg/L)	Fe^{+2} Conc. (mg/L)
6 15 2003	75	BTc	6.8	0.67	4385	3553	-3.1%	90.0	8.6	1434.7	1.5	773.8	3.5	43.4	44.3	20.9
6 15 2003	76	BTd	6.6	0.67	4102	NA	NA	74.0	10.5	1157.6	NA	723.3	3.8	34.8	39.5	29.4
6 15 2003	77	BTd	6.6	0.67	4102	3302	-2.9%	79.3	15.3	1312.5	3.1	718.4	3.9	35.0	41.0	29.6
6 15 2003	78	BTe	6.7	0.63	4974	3954	-3.2%	64.7	32.6	1633.4	1.2	844.9	4.7	50.4	65.1	39.3
6 15 2003	79	BTf	6.7	0.76	4562	3656	-4.3%	52.7	29.2	1511.7	0.9	763.1	4.0	44.4	59.1	48.6
6 15 2003	80	BTg	7.0	0.68	872	787	-4.4%	74.3	8.3	233.6	7.3	154.2	2.2	4.7	3.1	8.6
6 15 2003	81	BTh	6.9	0.79	732	704	-4.6%	52.8	6.8	201.9	21.1	133.4	2.1	4.8	4.9	6.2
6 15 2003	82	BTi	6.8	6.72	107	101	-9.5%	14.1	0.4	20.5	7.6	14.7	1.0	1.3	0.8	0.0
6 15 2003	83	BTj	5.8	6.75	2016	1749	-2.8%	9.7	0.5	637.1	17.4	366.7	3.1	12.1	10.2	7.7
6 15 2003	84	BTk	6.5	1.70	2528	2147	-2.0%	33.1	0.7	807.3	0.7	410.1	2.9	29.3	37.0	9.8
6 15 2003	85	BU	6.8	0.55	140	131	-2.2%	18.3	0.5	24.5	9.8	21.2	1.0	1.1	1.8	0.0
6 15 2003	71	BX	6.7	0.53	111	NA	NA	26.6	2.9	10.0	NA	9.2	1.3	3.2	5.5	2.1
6 15 2003	72	BY	6.3	2.05	81	81	-5.1%	10.5	0.4	15.4	6.3	12.9	0.6	0.6	0.8	0.1
6 15 2003	114	BZ	6.3	0.53	450	433	0.4%	17.3	0.8	127.6	3.5	61.9	1.4	8.4	10.4	10.9
6 15 2003	56	CA	6.1	2.49	235	NA	NA	35.7	4.7	37.0	NA	24.7	1.1	8.9	6.6	8.1
6 15 2003	57	CB	6.4	3.02	616	573	1.3%	43.3	0.4	157.0	13.0	90.7	1.4	11.6	12.2	0.6
6 15 2003	58	CC	5.9	3.57	77	75	-4.2%	5.4	0.4	16.0	6.0	9.4	0.8	1.5	1.4	0.1
6 15 2003	59	CD	6.5	0.95	308	265	3.2%	55.1	0.4	49.6	8.5	40.0	0.8	6.7	6.8	10.2
6 15 2003	45	East Weir	6.9	0.00	134	NA	NA	47.4	2.6	14.0	NA	14.7	2.3	15	5.9	0.6
6 15 2003	32	ST	6.1	5.30	285	259	1.6%	12.2	0.3	69.7	4.9	32.5	1.8	8.1	5.8	0.1
6 15 2003	33	ST	6.1	5.30	285	NA	NA	12.2	0.9	67.2	NA	32.5	1.8	8.1	5.8	0.1
6 15 2003	14	UB101	5.9	4.28	62	59	-4.5%	3.0	0.2	11.4	6.5	6.9	0.8	1.1	1.1	0.1
6 15 2003	15	UB102	5.8	10.84	59	57	-4.3%	2.8	0.7	10.8	6.2	6.5	0.8	1.0	1.2	0.1
6 15 2003	6	UB201	5.0	12.98	940	849	1.4%	0.7	0.4	276.1	11.0	153.3	1.9	4.0	16.4	0.2
6 15 2003	7	UB202	5.1	11.32	885	774	0.0%	0.8	0.7	254.9	6.1	140.6	2.9	4.3	11.3	0.1
6 15 2003	8	UB203	5.5	10.89	55	55	-0.3%	1.8	1.1	10.2	5.7	6.3	0.8	1.0	1.3	0.1
6 15 2003	9	UB204	5.3	10.92	52	51	-1.0%	1.6	1.0	9.4	5.6	5.8	0.8	1.0	1.2	0.1
6 15 2003	10	UB205	5.4	9.45	83	74	4.1%	1.8	0.6	14.9	6.7	9.5	0.8	1.7	1.6	0.1
6 15 2003	11	UB205	5.4	9.45	83	75	6.2%	1.5	0.6	14.9	6.8	9.7	0.8	1.8	1.7	0.2
6 15 2003	12	UC101	5.6	11.60	63	60	-0.7%	2.2	1.1	11.0	6.8	6.9	0.9	1.3	1.4	0.2
6 15 2003	13	UC102	5.3	10.79	65	61	5.8%	2.6	0.5	10.0	6.8	5.3	2.3	1.4	2.2	0.1
6 15 2003	1	UC201	5.6	10.24	352	339	-0.6%	2.0	0.8	101.2	6.9	59.9	1.3	1.8	3.4	0.1
6 15 2003	2	UC202	5.5	0.00	233	224	-1.7%	1.7	1.2	65.1	3.9	27.3	2.9	4.0	5.4	0.2
6 15 2003	3	UC203	6.0	0.00	100	99	-4.1%	4.3	2.1	23.5	4.8	13.7	3.0	0.8	1.1	0.1
6 15 2003	4	UC204	5.8	5.16	85	78	2.4%	5.9	1.4	12.8	7.9	9.0	4.5	1.3	1.3	0.1
6 15 2003	5	UC205	5.9	3.72	104	93	4.3%	9.4	1.6	12.8	10.9	7.9	5.1	2.7	2.8	0.1
6 15 2003	46	West Weir	7.2	0.00	225	215	-2.6%	41.6	0.7	45.3	4.5	35.6	0.6	1.1	3.9	0.7
7 10 2003	67	AA	5.5	12.73	80	83	-1.3%	4.8	0.3	12.0	12.8	9.4	0.9	1.6	1.9	0.0
7 10 2003	65	AB	5.9	12.66	68	NA	-5.5%	4.9	0.4	8.8	14.0	8.7	0.7	1.0	1.4	NS
7 10 2003	66	AB	5.9	12.65	68	NA	-6.5%	4.3	0.4	9.0	14.0	7.3	0.7	1.2	1.8	NS
7 10 2003	62	AC	5.7	13.14	68	71	-4.6%	4.7	0.4	13.0	8.6	10.5	0.5	0.8	0.9	0.0
7 10 2003	61	AD	6.1	5.21	154	149	1.8%	23.0	0.3	24.9	12.3	18.5	0.4	2.9	5.2	0.0
7 10 2003	102	AE	7.1	0.80	133	137	-2.4%	37.1	BDL	23.7	3.4	27.4	0.7	0.9	0.4	0.0
7 10 2003	83	AF	6.6	0.99	327	321	-0.3%	57.2	0.5	71.8	4.9	60.9	1.3	3.1	2.6	1.9
7 10 2003	15	AG	6.7	0.44	197	191	-0.5%	49.7	0.4	34.8	1.6	30.1	0.9	4.7	3.1	1.5
7 10 2003	14	AH	6.5	0.94	745	698	-0.5%	53.1	0.3	200.4	11.1	108.7	1.7	16.3	13.4	3.0
7 10 2003	42	AH	6.7	5.04	92	94	2.6%	30.3	0.6	10.5	4.8	20.9	0.2	0.3	0.3	0.0
7 10 2003	46	AJ	5.8	8.41	354	359	-2.5%	9.2	0.7	104.0	4.4	49.6	2.4	7.6	5.2	1.1
7 10 2003	63	AL	6.7	0.75	288	284	4.4%	63.7	0.4	55.7	1.9	64.8	0.6	0.9	0.4	1.9
7 10 2003	93	AM	6.5	7.39	490	466	2.0%	44.7	0.5	119.4	11.5	65.3	2.5	12.2	12.2	0.0
7 10 2003	45	AN	6.0	12.09	613	592	-1.2%	15.2	2.0	182.3	8.0	100.6	2.3	8.9	7.1	0.0
7 10 2003	49	AO	6.2	1.49	475	451	4.0%	35.4	0.4	131.7	7.6	98.0	1.0	2.3	1.4	2.5
7 10 2003	43	AP	6.3	1.23	693	654	1.1%	48.0	0.8	187.1	7.4	135.0	1.6	4.8	2.1	1.8
7 10 2003	44	AP	6.3	1.23	693	658	0.6%	49.5	0.7	189.2	7.7	135.4	1.6	5.2	2.0	1.2
7 10 2003	20	AQ	6.0	3.77	76	78	1.2%	9.7	0.7	12.5	8.0	15.3	0.5	0.4	0.1	0.0
7 10 2003	21	AR	5.5	0.90	372	368	2.4%	8.1	1.9	95.7	12.1	38.8	1.7	12.7	12.1	3.4
7 10 2003	22	AR	5.5	0.90	372	362	-0.2%	8.6	1.6	99.5	11.4	37.2	1.6	10.6	12.3	3.4
7 10 2003	74	AS	6.6	0.90	525	510	-0.2%	43.1	0.4	139.5	7.5	68.3	1.8	17.0	11.3	2.0
7 10 2003	85	AT	6.6	2.12	1117	1041	0.7%	92.0	0.4	302.9	18.2	186.0	2.5	21.2	16.6	3.8
7 10 2003	106	AU	6.3	1.63	77	78	-4.1%	7.0	0.4	16.7	5.0	10.5	0.9	1.4	1.1	0.0
7 10 2003	94	AV	6.6	6.93	145	144	-1.8%	15.2	0.3	33.9	4.6	21.0	1.3	2.4	2.3	0.0
7 10 2003	115	AW	6.0	0.28	73	73	-0.6%	5.5	0.7	14.4	5.7	10.7	1.0	1.1	0.9	0.0
7 10 2003	100	AX	6.5	6.85	74	71	4.5%	BDL	0.4	14.7	6.9	11.2	1.0	0.7	0.9	0.0
7 10 2003	91	AY	6.4	5.17	448	433	-0.5%	19.2	0.3	128.3	3.0	69.4	1.9	7.2	6.5	0.0
7 10 2003	114	AZ	6.2	7.97	95	94	-3.2%	5.3	0.5	21.8	5.5	12.5	1.2	1.9	1.3	0.0
7 10 2003	116	BA	5.4	9.34	88	89	-0.7%	2.0	0.7	18.2	9.2	10.2	1.2	2.3	1.8	0.0
7 10 2003	117	BB	5.5	0.30	69	68	0.7%	2.6	2.0	14.3	4.5	9.9	0.9	0.9	1.0	0.0
7 10 2003	25	BC	5.9	2.52	1349	1312	-0.3%	18.0	0.7	397.2	9.1	202.2	1.5	31.2	15.0	29.2
7 10 2003	41	BCa	7.1	0.38	650	616	1.5%	126.6	0.5	141.5	1.0	144.0	0.6	1.7	0.6	1.2
7 10 2003	107	BCb	6.9	0.18	694	650	3.0%	117.7	0.7	158.3	0.6	151.2	0.7	2.4	1.3	13
7 10 2003	52	BCc	6.5	0.15	1054	966	1.7%	69.0	0.5	285.7	3.8	146.3	1.2	35.8	17.8	13.2
7 10 2003	33	BCd	6.7	0.15	1066	989	1.3%	78.6	0.4	294.0	5.0	175.3	1.2	23.5	13.6	9.6
7 10 2003	105	BCe	6.8	0.23	65	70	-10.5%	10.6	0.4	13.2	5.9	11.0	0.7	0.5	0.3	0.0
7 10 2003	56	BCf	7.4	0.21	324	324	1.1%	84.6	0.5	62.9	1.9	74.7	0.4	0.4	BDL	1.2
7 10 2003	26	BCg	6.6	0.18	1055	962	1.1%	122.3	0.5	259.3	1.5	172.8	1.5	23.1	14.0	8.1
7 10 2003	53	BCh	7.3	0.17	696	668	0.4%	128.8	0.5	165.5	0.8	153.3	0.8	1.8	0.9	0.0
7 10 2003	35	BCi	6.6	0.18	1444	1279	-3.6%	79.3	0.5	415.0	5.6	232.2	2.9	13.7	16.4	24.6
7 10 2003	37	BCj	6.8	0.15	275	267	-4.4%	37.6	0.3	61.7	3.9	37.4	0.9	6.1	3.5	9.3
7 10 2003	95	BD	7.0	0.17	958	882	1.0%	149.9	0.6	233.6	0.9	205.5	0.9	1.5	0.8	0.0
7 10 2003	69	BE	6.5	0.14	145	145	2.5%	29.5	0.3	22.3	7.5	20.0	0.3	5.0	2.6	3.6
7 10 2003	23	BF	5.9	0.22	81	84	-4.4%	6.8	0.3	16.1	8.5	11.8	0.7	1.7	0.8	0.0
7 10 2003	68	BG	6.2	0.20	417	413	-0.2%	21.2	0.4	110.3	6.9	57.5	1.2	8.1	8.0	14.2
7 10 2003	47	BH	5.9	2.67	70	72	-3.5%	6.0	0.3	14.8	5.6	8.6	0.8	1.6	1.3	0.0
7 10 2003	59	BI	6.2	7.12	161	150	3.5%	9.4	0.5	34.0	7.3	25.0	1.4	2.1	1.7	0.0

Plymouth Well Sampling Summary

Updated 38519.0 SVK

NM = not measured; NS = not sampled; BDL = below detection limit; DND = did not detect

if listed as 0, below 1, rounded, but above detection limit

Sample Date	Sample ID	Borehole ID	pH	DO (mg/L)	Measured Conductivity (mS/cm)	Calc Conductivity (mS/cm)	Net Charge	HCO_3^- Conc. (mg/L)	Acetate Conc. (mg/L)	Cl^- Conc. (mg/L)	SO_4^{-2} Conc. (mg/L)	Na^+ Conc. (mg/L)	K^+ Conc. (mg/L)	Ca^{+2} Conc. (mg/L)	Mg^{+2} Conc. (mg/L)	Fe^{+2} Conc. (mg/L)
7 10 2003	80	BJ	6.3	7.00	232	226	1.5%	15.3	0.6	59.4	2.4	28.1	1.2	6.5	5.8	0.0
7 10 2003	43	BK	6.7	1.87	89	95	-8.2%	11.3	0.3	21.4	5.2	12.9	1.0	1.6	1.2	0.0
7 10 2003	90	BL	6.3	4.21	855	807	0.5%	18.4	0.4	254.6	10.8	153.5	2.1	8.1	8.1	0.0
7 10 2003	16	BM	6.7	2.83	70	78	-17.3%	16.2	0.4	14.3	6.4	10.8	0.5	0.7	0.6	0.0
7 10 2003	75	BMa	6.4	0.73	938	887	-1.5%	32.9	0.7	277.6	7.9	143.9	3.1	13.4	13.7	23.1
7 10 2003	97	BMb	6.5	0.60	1103	1013	-2.1%	49.9	0.5	320.3	9.3	180.8	2.4	13.1	13.0	12.1
7 10 2003	70	BMc	6.3	0.70	664	N/A	N/A	19.5	0.4	194.7	9.5	NS	NS	0.0	0.0	8.7
7 10 2003	87	BMd	6.5	8.21	85	84	-4.7%	12.5	0.7	16.4	4.8	13.0	0.9	1.1	0.8	0.0
7 10 2003	94	BMe	6.3	8.01	81	79	0.5%	7.0	0.3	15.4	5.9	12.9	0.8	0.9	0.8	0.0
7 10 2003	99	BMe	6.3	8.01	81	75	-2.8%	6.7	0.3	15.1	5.8	10.8	0.6	1.1	1.0	0.0
7 10 2003	17	BMf	6.0	7.83	78	78	-3.3%	5.7	0.4	16.1	6.3	12.2	0.7	0.8	0.7	0.0
7 10 2003	95	BMg	6.5	7.17	85	85	-2.6%	7.2	0.3	17.8	6.2	13.5	0.9	0.9	0.8	0.0
7 10 2003	71	BMh	6.0	5.92	120	122	-2.6%	4.3	0.3	26.6	11.2	20.7	1.0	0.8	0.7	0.0
7 10 2003	18	BN	6.1	0.67	350	345	-0.9%	15.9	0.3	83.2	9.5	54.1	1.4	4.8	3.3	14.6
7 10 2003	57	BO	6.2	1.90	76	80	-4.1%	7.7	0.2	16.7	5.4	11.5	1.0	1.1	1.0	0.0
7 10 2003	55	BO	6.2	1.90	76	79	-5.4%	7.5	0.3	16.9	5.6	9.9	1.0	1.3	1.3	0.0
7 10 2003	104	BOa	6.7	1.47	650	622	0.5%	53.2	0.5	168.5	12.7	104.1	2.2	11.2	9.8	6.2
7 10 2003	84	BOb	6.6	0.98	1100	694	1.0%	75.8	0.4	181.3	12.2	113.8	1.9	13.8	13.0	11.6
7 10 2003	82	BOd	6.5	0.76	1050	993	-1.0%	79.9	0.3	291.6	13.9	157.0	2.5	24.3	18.6	16.0
7 10 2003	75	BOe	6.4	1.34	455	N/A	N/A	23.5	1.8	126.1	12.3	NS	NS	NS	NS	10.7
7 10 2003	83	BOf	6.5	0.70	281	285	-1.5%	22.9	0.4	71.6	5.2	41.4	1.4	4.3	4.7	8.7
7 10 2003	79	BOg	6.5	0.69	287	290	-3.2%	13.0	0.4	78.9	5.8	45.4	1.8	3.1	3.2	6.0
7 10 2003	81	BOh	5.7	2.16	790	759	-0.9%	6.6	0.6	251.3	2.1	127.3	2.8	11.4	11.4	0.0
7 10 2003	83	BP	6.6	0.66	529	527	-0.6%	42.5	0.3	146.1	4.6	82.6	1.6	10.8	8.1	8.7
7 10 2003	13	BQ	5.7	6.47	68	69	-0.9%	3.5	0.3	14.7	5.1	9.5	0.9	1.0	1.1	0.0
7 10 2003	19	BR	6.0	2.65	73	83	-7.1%	8.3	0.4	16.8	5.6	10.9	1.0	1.1	1.0	0.0
7 10 2003	39	BS	6.8	0.15	62	71	-17.0%	16.0	0.3	12.5	5.8	8.8	0.5	1.2	0.8	0.0
7 10 2003	73	BTa	6.9	0.37	1150	1079	0.6%	90.4	0.4	331.9	0.5	238.9	1.4	6.3	3.0	2.5
7 10 2003	54	BTb	7.3	0.42	932	868	-0.3%	105.0	0.4	250.5	0.6	195.7	0.7	1.7	1.0	0.0
7 10 2003	34	BTc	7.3	0.27	615	578	1.6%	56.1	0.3	145.3	0.9	130.6	0.6	1.3	0.9	0.0
7 10 2003	29	BTd	6.4	0.28	2284	1943	2.1%	102.8	0.4	651.7	0.5	459.3	1.8	10.5	8.5	5.5
7 10 2003	32	BTe	6.9	0.34	1607	1437	-0.1%	109.0	4.9	468.4	0.6	325.9	1.3	6.0	4.4	3.1
7 10 2003	33	BTe	6.9	0.34	1607	1441	-0.3%	100.1	4.6	459.8	2.1	325.9	1.3	6.2	4.6	3.1
7 10 2003	30	BTf	7.0	0.41	588	568	-1.5%	71.9	0.9	154.7	0.8	106.6	0.8	6.7	5.1	3.7
7 10 2003	27	BTg	6.5	0.30	1782	1537	-2.2%	59.1	7.7	517.4	0.6	292.4	3.4	19.3	15.4	35.8
7 10 2003	28	BTh	6.6	0.31	1147	1062	-1.5%	64.7	0.5	335.4	2.6	211.3	2.8	9.1	7.2	11.8
7 10 2003	92	BTi	6.2	4.40	117	119	-5.2%	10.2	0.6	23.4	12.1	18.7	1.2	1.0	1.1	0.0
7 10 2003	103	BTj	6.9	0.21	380	389	0.4%	51.8	0.8	94.0	5.5	82.1	1.4	0.4	0.4	0.0
7 10 2003	72	BTk	6.7	0.30	1670	1504	2.2%	111.9	0.8	481.7	1.2	335.8	2.0	13.4	10.1	2.8
7 10 2003	51	BU	6.6	0.93	404	407	3.6%	78.2	1.0	85.2	7.2	87.5	0.6	2.4	1.3	3.5
7 10 2003	24	BX	6.3	0.07	107	105	8.3%	22.5	0.7	14.0	4.4	10.9	1.4	6.4	2.4	1.8
7 10 2003	48	BY	6.3	0.74	78	85	-1.1%	14.3	0.4	15.1	3.5	15.8	0.6	0.2	0.1	0.0
7 10 2003	55	BZ	6.6	0.69	1019	939	-4.1%	13.7	0.4	306.5	3.0	122.8	2.3	29.2	16.7	33.9
7 10 2003	64	CA	6.3	3.50	249	243	2.1%	28.8	0.8	31.2	13.0	31.5	1.2	6.4	7.1	0.0
7 10 2003	35	CB	6.9	2.33	710	679	-0.5%	53.6	0.5	196.0	9.3	99.6	2.2	18.6	14.4	0.0
7 10 2003	59	CC	6.6	5.83	74	78	-9.6%	11.2	0.4	15.6	5.5	10.8	0.8	1.1	0.9	0.0
7 10 2003	60	CD	6.6	0.87	269	261	2.3%	56.1	0.3	42.2	19.6	39.0	0.9	6.1	5.2	9.9
7 10 2003	3	Field blank 1	NM	NM	N/A	4	N/A	BDL	0.3	0.2	0.9	0.6	0.0	BDL	BDL	0.0
7 10 2003	108	Field blank 2	NM	NM	N/A	3	N/A	BDL	0.3	0.1	0.5	0.7	0.0	0.0	0.0	0.0
7 10 2003	77	ST	6.4	10.30	173	N/A	0.6%	11.1	0.3	40.7	7.1	21.6	1.4	3.9	4.0	NS
7 10 2003	112	UB101	6.8	10.66	72	69	-8.3%	8.7	0.8	12.5	6.6	9.3	1.0	1.1	0.8	0.0
7 10 2003	113	UB102	6.8	10.43	60	56	2.4%	BDL	0.5	11.2	6.0	8.4	0.8	0.8	0.5	0.0
7 10 2003	7	UB201	4.9	11.33	1110	591	-0.6%	0.5	0.3	332.8	10.4	182.5	2.2	24.6	3.4	0.0
7 10 2003	8	UB202	5.1	13.66	1057	583	-0.7%	0.7	0.3	332.1	7.9	189.9	3.0	17.0	2.7	0.0
7 10 2003	9	UB203	5.2	13.02	917	821	0.2%	0.9	0.6	272.2	3.9	156.3	3.6	19.5	5.9	0.0
7 10 2003	10	UB204	5.6	12.82	118	117	-5.0%	2.1	0.5	30.7	5.9	15.6	1.0	2.5	1.2	0.0
7 10 2003	11	UB204	5.6	12.82	118	119	-1.2%	1.8	0.4	31.0	5.1	17.2	1.1	2.3	1.3	0.0
7 10 2003	12	UB205	5.7	12.00	67	68	4.0%	2.6	0.4	12.9	6.4	9.4	0.8	1.7	1.0	0.0
7 10 2003	109	UC101	6.6	11.75	67	77	-20.2%	10.0	0.5	9.3	16.0	6.8	2.2	1.6	1.0	0.0
7 10 2003	110	UC101	6.6	11.75	67	63	-10.4%	10.7	0.5	9.5	7.2	5.3	2.2	2.0	1.2	0.0
7 10 2003	111	UC102	6.5	10.99	62	63	-7.0%	6.7	0.9	11.0	6.9	8.3	0.8	1.1	0.8	0.0
7 10 2003	5	UC201	6.0	8.78	285	270	-1.3%	4.5	0.2	77.0	7.9	50.1	1.1	2.0	0.5	0.0
7 10 2003	1	UC202	6.2	8.93	176	174	-5.1%	4.7	0.6	46.5	8.1	26.6	2.2	2.9	0.7	0.0
7 10 2003	2	UC203	5.9	8.67	120	117	-1.4%	BDL	0.7	32.0	3.7	18.4	3.0	1.1	0.3	0.0
7 10 2003	4	UC204	6.1	6.78	99	83	-3.4%	8.0	0.2	15.2	7.6	11.0	4.4	1.0	0.4	0.0
7 10 2003	6	UC205	6.1	5.00	312	94	-4.2%	13.0	0.4	12.8	12.6	9.4	5.3	2.5	1.3	0.0
7 10 2003	31	West Weir	6.9	4.58	621	595	0.7%	30.9	0.7	169.8	14.1	113.3	2.7	10.2	2.2	0.0
8 25 2003	32	AA	5.6	2.83	341	332	0.5%	5.7	0.5	98.7	2.9	38.4	1.2	9.1	10.0	BDL
8 25 2003	33	AB	5.3	6.03	450	440	1.0%	3.6	0.3	136.0	7.1	53.1	1.8	9.1	16.0	BDL
8 25 2003	35	AC	5.7	9.07	100	106	8.2%	11.3	0.3	17.8	8.5	14.7	0.7	2.7	2.8	BDL
8 26 2003	36	AD	6.1	6.60	238	235	3.6%	25.2	0.2	52.2	9.5	25.7	0.4	5.7	10.1	BDL
8 26 2003	44	AE	6.5	1.31	171	163	2.1%	45.5	0.1	26.2	3.1	31.4	0.8	3.4	1.5	BDL
8 26 2003	43	AF	6.4	1.40	250	233	3.3%	57.9	0.3	40.7	4.1	46.5	1.0	2.1	2.2	2.4
8 26 2003	45	AG	6.4	1.56	598	559	2.2%	49.9	0.5	147.8	11.5	83.0	1.6	13.4	13.9	2.5
8 26 2003	39	AH	6.5	1.59	578	540	2.0%	67.8	0.3	134.7	11.2	83.9	1.5	10.5	11.3	1.7
8 26 2003	40	AH	6.5	1.59	578	540	2.7%	66.7	0.2	134.0	11.1	85.4	1.5	11.0	11.7	1.7
8 25 2003	22	AII	6.0	1.52	135	130	3.0%	29.6	0.4	23.5	2.2	24.8	0.2	1.1	1.7	BDL
8 25 2003	21	AJ	5.9	3.21	205	202	1.5%	13.9	0.6	45.9	11.3	34.0	1.3	2.8	2.3	BDL
8 26 2003	47	AKI	6.4	2.80	132	130	-0.8%	21.3	0.5	24.0	5.6	18.4	0.8	3.0	2.0	2.4
8 26 2003	53	AL	6.7	0.52	320	306	2.4%	11.7	0.6	55.3	1.7	67.8	0.9	2.0	0.9	1.8
8 26 2003	37	AN	6.2	6.28	250	243	1.3%	31.5	0.4	49.7	13.6	49.6	0.8	0.7	0.6	BDL
8 26 2003	24	AO	6.6	1.63	175	171	1.2%	42.3	0.3	39.6	2.8	37.3	0.4	0.3	0.1	1.1
8 26 2003	23	AP	6.3	1.52	345	353	1.7%	58.6	1.0	81.6	1.3	73.8	1.1	2.4	0.8	2.0
8 26 2003	103	AQ	6.0	1.14	332	283	0.9%	15.6	0.6	71.5	5.3	52.2	1.3	3.8	1.8	BDL

Plymouth Well Sampling Summary

Updated 38519.0 SVK

NM = not measured BDL = below detection limit.
NS = not sampled DND = did not detect
if listed as 0, below 1, rounded, but above detection limit

Sample Date	Sample ID	Borehole ID	pH	DO (mg/L)	Measured Conductivity (mS/cm)	Calc Conductivity (mS/cm)	Net Charge	HCO_3^- Conc. (mg/L)	Acetate Conc. (mg/L)	Cl^- Conc. (mg/L)	SO_4^{-2} Conc. (mg/L)	Na^+ Conc. (mg/L)	K^+ Conc. (mg/L)	Ca^{+2} Conc. (mg/L)	Mg^{+2} Conc. (mg/L)	Fe^{+2} Conc. (mg/L)
8 26 2003	92	AR	6.0	1.31	408	398	-6.3%	33.0	9.4	100.5	4.1	51.9	2.1	6.0	7.1	21.8
8 26 2003	38	AS	6.5	1.39	551	535	1.1%	71.0	0.3	132.1	11.9	92.3	2.1	10.6	8.1	1.7
8 25 2003	31	AT	6.6	0.74	745	703	2.3%	75.0	0.5	186.0	14.0	125.7	1.6	12.2	11.9	1.9
8 26 2003	79	AU	6.0	2.70	69	68	-3.2%	6.7	0.3	13.8	5.0	10.0	0.7	0.9	0.9	BDL
8 26 2003	80	AU	6.0	2.70	69	69	-3.6%	7.0	0.3	13.8	4.9	8.4	0.8	1.7	1.2	BDL
8 25 2003	96	AV	6.0	7.94	154	156	3.2%	10.9	0.2	35.0	3.7	20.0	1.3	3.9	3.9	BDL
8 26 2003	115	AW	5.6	2.18	70	65	4.7%	3.6	0.5	13.4	5.0	10.6	0.9	1.2	0.7	BDL
8 26 2003	95	AX	6.1	9.01	69	68	-4.9%	6.4	0.2	13.6	5.8	10.3	0.7	0.5	0.7	BDL
8 26 2003	97	AY	6.2	6.50	306	294	2.1%	19.5	0.6	77.9	4.5	45.5	1.6	5.8	5.2	BDL
8 26 2003	116	AZ	5.5	6.26	87	83	3.1%	2.6	0.9	17.9	7.6	13.0	1.6	1.3	0.7	BDL
8 26 2003	117	BA	5.4	6.28	55	55	2.8%	2.4	0.4	15.2	10.1	13.8	1.0	0.9	0.6	1.4
8 25 2003	118	BB	5.4	2.79	78	74	2.4%	2.7	0.5	16.3	4.7	11.1	0.9	0.9	1.1	BDL
8 26 2003	69	BC	5.9	2.37	62	61	-0.8%	4.9	0.2	11.7	3.2	10.1	0.6	0.6	0.4	BDL
8 26 2003	70	BC	5.9	2.37	62	60	0.4%	4.3	0.2	11.7	5.0	8.8	0.6	1.2	0.7	BDL
8 26 2003	64	BCa	6.8	1.71	662	609	2.0%	96.1	0.3	154.3	0.7	129.8	1.0	5.7	2.8	2.4
8 26 2003	59	BCb	6.7	0.89	395	385	1.1%	44.1	0.4	97.4	4.9	55.1	0.7	12.0	7.8	2.4
8 26 2003	60	BCb	6.7	0.89	395	378	2.5%	43.4	0.2	94.7	3.3	53.5	0.7	12.4	8.1	2.4
8 26 2003	72	BCc	6.5	1.05	883	819	1.2%	55.8	0.2	240.7	6.9	147.8	1.7	15.5	9.7	7.5
8 25 2003	19	BCd	6.0	1.34	194	184	-1.4%	11.4	0.4	49.6	2.5	25.1	1.3	3.8	3.5	BDL
8 25 2003	20	BCd	6.0	1.34	194	184	-0.4%	10.5	0.3	49.4	2.3	23.8	1.3	4.3	3.9	BDL
8 25 2003	61	BCe	6.6	1.27	135	129	-0.3%	22.5	0.2	23.1	4.0	19.1	0.3	2.6	1.7	5.7
8 25 2003	71	BCf	6.9	1.29	470	452	1.6%	116.8	0.3	91.6	1.1	98.0	0.6	3.7	2.5	2.1
8 26 2003	66	BCg	6.7	1.23	694	650	1.5%	84.7	0.3	166.8	9.3	126.7	1.1	8.7	6.9	3.3
8 26 2003	68	BCh	6.7	1.25	929	837	1.6%	85.9	0.4	240.3	0.3	142.8	1.3	20.8	14.4	3.6
8 26 2003	67	BCi	6.7	1.68	183	183	0.8%	32.6	0.2	35.3	5.0	29.7	0.6	2.4	2.9	4.7
8 26 2003	65	BCj	6.5	2.06	108	106	-2.6%	16.0	0.2	17.3	6.6	15.5	0.5	1.9	0.9	5.5
8 26 2003	75	BD	7.0	1.47	718	671	0.7%	131.8	0.2	162.3	2.3	138.5	1.0	7.2	5.7	1.9
8 26 2003	63	BE	5.9	2.55	213	211	0.0%	5.6	0.2	54.8	6.0	25.2	2.0	7.0	3.2	4.6
8 26 2003	62	BF	5.9	3.40	110	105	2.0%	6.0	0.2	21.7	8.6	16.8	0.9	1.7	1.1	BDL
8 26 2003	122	BG	6.4	2.32	593	587	5.1%	54.3	1.3	145.9	9.5	93.1	19.5	8.8	9.8	9.7
8 26 2003	106	BH	5.8	2.20	65	61	0.3%	4.1	0.2	12.1	4.9	9.1	0.7	0.8	0.8	BDL
8 26 2003	121	BH	5.8	2.20	65	NA	NA	0.0	BDL	6.4	2.6	0.0	0.0	0.0	0.0	NA
8 26 2003	101	BI	5.8	6.50	135	125	1.7%	4.1	1.8	39.2	7.0	20.4	1.2	1.6	1.3	BDL
8 26 2003	94	BJ	6.3	6.22	131	125	1.8%	20.3	0.3	21.8	8.3	22.8	1.1	1.3	1.0	BDL
8 26 2003	35	BK	5.9	2.47	80	78	-3.2%	6.6	0.6	16.0	5.8	11.8	0.9	1.2	0.6	BDL
8 26 2003	93	BL	6.3	6.01	217	212	-1.5%	22.9	0.4	50.7	6.9	37.6	0.9	2.0	1.7	BDL
8 26 2003	84	BM	6.0	2.93	69	67	-7.6%	8.8	0.4	11.6	7.3	10.9	0.7	0.5	0.3	BDL
8 26 2003	18	BMa	6.4	0.28	1168	1083	0.9%	68.4	0.3	328.8	12.4	162.2	2.2	30.7	26.8	12.2
8 26 2003	17	BMb	6.3	0.35	335	370	0.9%	27.3	0.4	93.5	4.2	62.4	1.1	5.1	4.6	5.7
8 26 2003	14	BMc	5.7	4.32	127	115	3.5%	6.0	0.3	29.4	1.9	19.4	0.8	1.3	1.4	BDL
8 26 2003	108	BMd	5.7	7.55	158	191	-2.4%	6.2	1.9	33.5	2.9	25.6	1.5	3.9	3.4	BDL
8 26 2003	23	BMe	5.9	7.91	111	104	-0.4%	7.4	0.2	24.7	3.8	15.0	0.7	1.6	1.8	BDL
8 26 2003	26	BMf	5.7	8.27	87	81	0.2%	4.9	0.4	18.0	4.8	12.6	0.7	1.0	1.0	BDL
8 26 2003	25	BMg	5.8	4.70	97	94	-1.6%	6.9	0.4	20.6	6.0	15.4	0.9	0.8	0.9	BDL
8 25 2003	13	BMh	5.4	3.42	102	99	0.7%	3.1	0.4	21.3	8.6	17.7	0.8	0.5	0.5	BDL
8 26 2003	39	BN	6.2	0.39	183	174	-5.9%	12.3	0.4	41.4	3.4	21.7	2.1	2.7	1.9	10.2
8 25 2003	33	BN	6.2	0.39	183	172	-6.5%	11.3	0.1	41.3	3.4	20.4	2.2	2.9	2.0	10.1
8 26 2003	49	BO	6.1	0.50	77	75	-6.7%	10.1	0.1	15.0	4.9	10.6	0.8	0.8	1.0	BDL
8 25 2003	50	BO	6.1	0.50	77	75	-4.1%	9.1	0.3	15.0	5.0	9.3	0.9	1.6	1.4	BDL
8 26 2003	15	BOa	6.2	1.47	501	476	1.1%	24.4	0.3	132.8	4.0	60.5	1.4	11.9	12.9	11.0
8 26 2003	16	BOb	6.4	1.41	451	425	-0.3%	35.6	0.2	111.9	5.0	57.5	1.1	10.3	9.5	10.2
8 26 2003	56	BOc	6.3	1.18	709	662	1.6%	18.2	0.3	198.2	4.3	83.6	1.7	18.8	18.1	15.6
8 26 2003	57	BOd	6.6	1.07	653	635	1.5%	48.3	0.2	175.7	8.1	105.8	2.0	11.9	10.4	8.8
8 25 2003	52	BOe	6.5	1.54	195	187	0.5%	23.1	0.2	35.6	6.2	25.0	0.9	3.5	4.0	8.1
8 26 2003	53	BOf	6.6	1.35	173	164	-0.5%	27.7	0.3	27.1	9.3	22.9	1.1	2.5	3.1	7.5
8 25 2003	55	BOg	6.2	4.76	105	101	2.5%	9.9	0.2	15.9	12.0	16.8	1.0	1.2	1.2	BDL
8 26 2003	54	BOh	6.4	7.55	89	86	-2.2%	9.7	0.2	13.9	10.3	15.9	0.5	0.2	0.2	BDL
8 25 2003	48	BP	6.6	0.43	690	639	0.3%	37.2	1.5	177.2	13.8	102.3	2.1	10.8	11.1	12.8
8 25 2003	58	BQ	6.3	0.55	70	73	0.8%	10.1	0.1	13.2	4.5	8.6	1.5	1.5	1.8	BDL
8 25 2003	51	BR	5.8	3.07	76	74	3.1%	5.3	0.2	14.7	5.2	9.7	0.8	1.4	1.7	BDL
8 26 2003	59	BS	6.4	0.73	65	69	-10.2%	12.0	0.4	12.8	4.7	8.7	0.8	1.7	0.6	BDL
8 26 2003	90	BS	6.4	0.73	65	65	-9.5%	11.7	0.3	12.1	4.6	7.4	0.9	2.0	0.9	BDL
8 26 2003	85	BTa	7.1	0.74	808	761	-1.3%	151.7	0.3	190.6	2.2	161.6	1.4	6.3	3.9	2.3
8 25 2003	87	BTb	6.9	0.66	1095	1019	-0.6%	164.6	0.4	211.6	2.0	176.3	1.5	22.1	21.4	BDL
8 25 2003	88	BTc	7.3	0.65	314	313	-2.5%	89.9	0.3	53.9	3.6	60.3	0.5	3.3	2.8	1.2
8 26 2003	99	BTd	7.3	0.69	415	397	-0.8%	87.2	0.2	92.3	0.3	87.4	0.5	1.0	0.7	BDL
8 26 2003	100	BTd	7.3	0.69	415	394	-0.9%	85.7	0.1	93.0	0.3	85.1	0.5	1.1	0.8	BDL
8 25 2003	77	BTe	7.0	2.22	755	707	-0.5%	107.6	0.3	187.5	0.9	123.0	1.1	13.1	11.9	4.5
8 26 2003	73	BTf	6.9	0.61	181	182	0.5%	34.6	0.2	29.1	2.6	31.7	0.6	2.7	1.6	1.5
8 25 2003	82	BTg	6.6	0.64	611	574	0.5%	84.7	0.3	145.2	3.4	113.7	1.1	6.3	4.0	6.1
8 25 2003	83	BTh	6.6	0.62	485	484	-5.1%	65.1	0.7	127.6	4.8	87.1	1.4	4.7	3.2	6.8
8 26 2003	78	BTi	6.4	4.27	121	121	-4.0%	12.2	0.5	24.9	9.3	20.3	1.0	0.8	0.9	BDL
8 25 2003	81	BTj	6.5	2.42	117	117	-0.8%	24.4	0.7	22.5	2.8	24.4	0.4	0.2	0.0	BDL
8 26 2003	76	BTk	7.3	1.31	453	465	-1.1%	132.0	0.3	95.1	0.6	103.8	0.8	2.1	1.4	BDL
8 26 2003	105	BU	7.1	2.29	133	NA	NA	42.2	0.4	19.1	3.9	29.7	0.1	0.1	n.a.	BDL
8 26 2003	74	BX	6.7	2.44	109	129	13.8%	32.7	0.2	12.6	3.9	11.2	1.7	10.0	3.1	1.6
8 26 2003	104	BY	6.1	2.16	74	72	-3.2%	8.7	0.4	14.3	4.4	11.1	0.7	1.0	0.7	BDL
8 26 2003	107	BZ	6.7	0.56	147	149	-2.4%	34.4	1.3	26.5	4.2	24.3	0.5	1.1	0.7	1.7
8 25 2003	122	BZ	6.7	0.56	147	NA	NA	0.0	BDL	13.4	2.1	0.0	0.0	0.0	0.0	NA
8 25 2003	34	CA	6.3	6.06	187	182	4.0%	30.3	0.4	32.2	10.6	26.3	1.0	3.7	5.0	BDL
8 26 2003	91	CB	6.4	3.55	492	437	-1.8%	32.6	0.6	131.2	18.7	73.4	1.5	10.3	8.8	BDL
8 26 2003	41	CC	6.3	2.55	79	76	-5.2%	8.3	0.3	16.0	4.7	11.4	1.0	1.3	0.3	BDL
8 25 2003	37	CD	6.4	1.36	275	265	1.5%	43.5	0.3	49.3	11.3	35.2	0.5	5.9	6.4	9.3
8 26 2003	1	Field blank 1	5.4	NM	6	4	-17.8%	BDL	0.3	0.8	0.6	0.6	0.1	0.0	0.0	BDL
8 26 2003	111	Field blank 2	6.2	NM	6	N/A	N/A	BDL	0.2	0.2	0.3	0.8	0.0	0.0	n.a.	BDL

Plymouth Well Sampling Summary

Updated 38519.0 SVK

NM = not measured; NS = not sampled

BDL = below detection limit; DND = did not detect

If listed as 0; below 1, rounded, but above detection limit

Sample Date	Sample ID	Borehole ID	pH	DO (mg/L)	Measured Conductivity (mS/cm)	Calc Conductivity (mS/cm)	Net Charge	HCO_3^- Conc. (mg/L)	Acetate Conc. (mg/L)	Cl^- Conc. (mg/L)	SO_4^{-2} Conc. (mg/L)	Na^+ Conc. (mg/L)	K^+ Conc. (mg/L)	Ca^{+2} Conc. (mg/L)	Mg^{+2} Conc. (mg/L)	Fe^{+2} Conc. (mg/L)
8 26 2003	42	ST	5.7	6.90	517	499	1.2%	3.9	0.3	151.4	5.3	72.6	3.3	10.7	10.6	BDL
8 26 2003	113	UB101	5.7	11.19	65	64	-2.0%	2.7	0.9	12.7	6.3	9.3	0.8	0.9	0.7	BDL
8 26 2003	114	UB102	5.6	10.85	67	69	-3.2%	2.2	1.5	12.0	5.6	8.6	0.7	0.5	0.6	BDL
8 26 2003	7	UB201	4.6	9.26	1315	1153	1.0%	0.3	1.0	338.0	13.6	235.2	2.5	16.6	3.7	BDL
8 26 2003	9	UB202	4.8	9.17	424	355	1.0%	0.4	0.2	117.0	10.4	74.2	1.2	5.2	0.9	BDL
8 26 2003	10	UB202	4.8	9.17	424	399	0.5%	0.4	0.2	118.0	10.7	73.3	1.3	5.9	1.0	BDL
8 26 2003	3	UB203	5.0	8.92	126	119	1.4%	0.7	0.3	23.6	8.1	20.7	0.9	1.1	0.5	BDL
8 26 2003	11	UB204	5.3	8.95	74	70	2.0%	1.0	0.3	15.7	5.2	11.3	0.7	0.7	0.6	BDL
8 26 2003	12	UB205	5.1	8.84	57	53	1.6%	1.2	0.5	10.5	5.2	7.7	0.6	0.7	0.8	BDL
8 26 2003	109	UC101	5.8	11.30	60	56	-3.5%	4.2	0.3	9.7	6.5	6.6	0.9	1.3	0.9	BDL
8 26 2003	110	UC101	5.8	11.30	60	60	4.5%	3.9	0.4	9.8	6.5	7.7	0.8	1.4	1.3	BDL
8 26 2003	112	UC102	5.7	10.05	67	60	1.7%	3.4	1.4	9.9	6.7	7.2	2.4	1.4	0.9	BDL
8 26 2003	4	UC201	5.3	8.67	285	265	1.5%	1.4	0.5	72.1	11.2	49.3	1.0	2.5	1.1	BDL
8 26 2003	6	UC202	5.5	7.69	149	144	-0.1%	2.0	0.3	31.2	14.9	25.8	1.3	0.9	0.3	BDL
8 26 2003	2	UC203	5.1	7.49	96	92	1.1%	0.6	0.5	21.3	2.7	14.8	2.3	0.8	0.5	BDL
8 26 2003	5	UC204	5.4	6.99	78	75	2.7%	2.4	1.4	13.2	8.1	10.3	4.2	0.7	0.6	BDL
8 26 2003	3	UC205	5.3	4.34	103	89	10.9%	3.3	0.9	12.1	12.3	9.5	5.3	2.2	2.1	BDL
8 26 2003	45	West Weir	6.7	2.08	398	372	2.1%	69.0	0.6	80.6	5.6	60.6	1.9	15.9	2.5	BDL
9 18 2003	24	AA	5.8	6.83	510	487	1.8%	3.5	0.3	143.7	12.9	76.6	2.1	8.5	8.9	BDL
9 18 2003	97	AB	5.7	3.42	414	404	0.6%	7.3	1.9	112.7	15.0	56.9	2.6	6.4	10.1	BDL
9 18 2003	77	AC	5.6	4.11	197	188	2.1%	3.9	0.4	48.8	7.8	27.8	0.9	2.6	3.9	BDL
9 18 2003	49	AD	6.5	3.61	221	211	4.0%	22.2	0.4	45.4	9.7	26.5	0.7	5.4	6.9	BDL
9 18 2003	50	AD	6.5	3.61	224	210	-5.0%	21.3	0.4	45.1	9.4	25.0	0.9	5.8	7.4	BDL
9 18 2003	24	AE	6.5	4.20	173	171	5.4%	33.2	0.4	30.3	2.6	32.2	0.8	3.1	2.0	BDL
9 18 2003	33	AF	6.5	4.23	219	205	9.2%	50.6	0.3	32.1	3.3	41.7	1.0	2.5	2.5	2.6
9 18 2003	19	AG	6.4	4.10	640	605	1.5%	32.8	0.4	171.7	10.4	90.1	1.8	15.8	12.9	3.6
9 18 2003	20	AO	6.4	4.10	640	604	1.4%	33.5	0.5	171.4	10.7	88.5	1.8	16.1	13.1	3.6
9 18 2003	13	AH	6.5	4.20	485	481	3.0%	49.5	0.2	120.5	11.5	73.5	1.3	11.8	11.1	1.9
9 18 2003	78	AI	6.1	0.60	329	319	6.3%	11.5	0.2	57.3	1.4	17.5	0.3	6.8	11.8	BDL
9 18 2003	81	AJ	6.4	1.71	265	245	2.5%	30.6	1.4	53.9	8.8	50.7	1.2	1.3	0.8	BDL
9 18 2003	31	AK	6.4	4.49	211	207	2.2%	13.2	0.8	50.1	5.8	23.3	2.3	6.8	5.3	2.1
9 18 2003	33	AL	6.6	4.70	306	291	5.1%	60.2	0.3	57.2	2.7	60.7	0.8	2.8	1.8	3.9
9 18 2003	[redacted]										6.2	81.7	1.7	6.3	2.5	BDL
9 18 2003											5.3	44.2	1.2	6.8	1.2	BDL
9 18 2003	75	AO	6.9	5.40	245	228	6.5%	60.3	1.2	37.4	3.1	54.4	0.6	0.5	0.2	BDL
9 18 2003	82	AP	6.5	5.70	435	424	-1.1%	68.8	4.0	104.3	1.3	59.2	1.3	2.0	0.7	1.6
9 18 2003	84	AQ	6.2	1.53	400	395	-3.8%	27.7	1.6	108.9	9.7	63.3	1.7	6.9	4.2	1.0
9 18 2003	39	AS	6.5	4.10	545	539	2.4%	42.6	0.6	144.0	10.5	85.4	2.0	13.3	9.8	2.8
9 18 2003	34	AS	6.5	4.10	545	536	2.0%	42.3	0.3	143.9	10.3	83.2	1.9	13.6	10.0	2.8
9 18 2003	25	AT	6.5	5.00	524	511	3.5%	59.9	0.2	123.0	15.4	85.2	1.2	11.1	10.1	1.6
9 18 2003	55	AU	6.2	0.00	65	65	-3.2%	8.2	1.2	12.0	5.6	9.8	0.7	0.8	0.8	BDL
9 18 2003	71	AV	6.0	9.00	352	328	3.0%	4.0	0.3	95.5	2.6	41.8	2.0	8.4	9.0	BDL
9 18 2003	115	AW	5.6	1.60	69	65	10.5%	BDL	0.5	13.1	3.1	10.6	0.9	1.0	0.9	BDL
9 18 2003	72	AX	6.4	9.13	70	65	3.2%	BDL	0.6	12.9	5.9	10.8	0.9	0.6	0.7	BDL
9 18 2003	73	AY	6.4	8.09	234	216	5.3%	15.2	0.3	48.4	11.1	39.4	1.1	2.7	2.2	BDL
9 18 2003	113	AZ	5.2	8.47	88	82	7.6%	BDL	0.4	17.3	7.0	13.4	1.0	1.3	0.9	BDL
9 18 2003	114	BA	5.3	5.99	94	85	8.8%	BDL	0.3	18.7	6.1	14.8	1.0	1.0	0.9	BDL
9 18 2003	115	BB	5.5	2.50	84	85	13.6%	BDL	0.4	18.5	4.5	13.1	2.3	1.3	1.5	BDL
9 18 2003	94	BC	6.1	0.09	66	63	-3.2%	7.4	1.5	11.1	5.4	10.6	0.7	0.4	0.4	BDL
9 18 2003	105	BCa	6.9	0.17	674	613	3.2%	97.1	1.2	145.2	4.5	112.2	1.2	13.3	8.2	7.6
9 18 2003	101	BCb	6.8	3.20	702	644	0.6%	107.4	2.6	159.3	6.2	111.4	1.2	15.4	10.5	4.1
9 18 2003	103	BCc	7.1	3.00	118	137	-20.1%	54.7	0.9	19.1	4.4	16.6	0.3	2.8	1.9	3.9
9 18 2003	106	BCd	7.1	3.00	155	152	-1.0%	30.1	0.4	27.8	3.7	20.5	0.5	4.3	2.7	4.5
9 18 2003	99	BCe	6.8	3.20	129	122	-4.7%	25.6	0.3	20.2	4.3	16.2	0.4	3.5	1.8	6.0
9 18 2003	100	BCe	6.8	3.20	129	120	-5.3%	24.6	0.2	20.0	4.5	14.7	0.3	2.9	2.0	6.0
9 18 2003	104	BCf	7.0	4.10	580	538	4.5%	108.6	0.5	118.2	0.7	100.3	0.9	11.5	8.5	4.8
9 18 2003	58	BCg	6.7	3.90	711	643	2.2%	76.9	0.2	167.6	7.8	124.6	1.1	8.2	7.1	4.6
9 18 2003	102	BCh	7.2	3.10	622	595	-2.8%	130.3	0.9	136.7	5.7	101.0	0.9	12.9	8.9	5.9
9 18 2003	107	BCi	7.0	3.19	210	203	1.5%	22.7	0.2	40.3	8.6	24.5	0.9	4.7	5.2	9.2
9 18 2003	93	BCj	6.5	0.00	319	306	-5.1%	14.1	1.1	84.9	3.6	35.0	2.5	7.7	4.3	9.1
9 18 2003	92	BD	6.9	3.60	410	380	3.6%	86.4	1.6	73.7	5.7	71.6	0.8	6.7	5.5	2.2
9 18 2003	91	BE	6.0	0.00	115	112	0.3%	10.8	1.4	20.9	9.3	18.1	1.1	1.6	1.2	BDL
9 18 2003	55	BF	6.1	0.00	208	200	-1.0%	13.0	0.9	50.6	6.8	29.8	1.4	4.1	2.6	BDL
9 18 2003	61	BG	6.8	0.24	515	484	2.5%	45.2	0.3	123.7	7.1	84.1	1.4	6.9	6.9	9.7
9 18 2003	63	BH	6.3	0.55	65	61	4.7%	BDL	0.2	11.7	5.1	9.7	0.8	0.8	0.8	BDL
9 18 2003	53	BI	6.0	8.07	170	157	6.2%	BDL	0.4	38.6	6.8	25.8	1.6	2.4	2.0	BDL
9 18 2003	61	BJ	6.3	9.07	257	239	5.2%	7.7	0.4	64.9	2.3	28.4	2.0	7.6	6.9	BDL
9 18 2003	65	BK	6.3	1.51	75	72	4.5%	BDL	0.3	13.1	6.6	11.5	0.9	0.9	0.7	BDL
9 18 2003	69	BL	6.3	7.98	358	338	2.4%	7.3	0.2	95.4	7.5	56.5	1.9	5.1	4.4	BDL
9 18 2003	70	BL	6.3	7.98	358	338	1.3%	7.0	0.3	96.1	8.2	54.5	1.3	5.4	4.9	BDL
9 18 2003	16	BM	5.8	0.00	71	69	1.6%	BDL	0.4	12.9	8.1	11.4	0.7	0.6	0.5	BDL
9 18 2003	36	BMa	6.7	4.23	603	576	2.6%	34.7	0.3	163.5	3.7	80.3	2.2	17.3	13.8	5.5
9 18 2003	14	BMb	6.0	3.90	369	342	2.6%	10.1	0.3	94.5	3.8	54.8	1.3	5.3	4.7	7.7
9 18 2003	15	BMc	5.6	0.00	535	503	-0.4%	3.3	0.2	160.5	1.3	69.0	1.6	10.3	12.4	BDL
9 18 2003	32	BMd	5.7	0.00	354	353	1.1%	2.1	0.4	107.5	2.1	50.2	1.9	7.5	7.0	BDL
9 18 2003	28	BMe	5.9	0.00	94	85	2.8%	3.3	0.2	20.3	4.2	13.1	0.6	1.2	1.3	BDL
9 18 2003	31	BMf	6.2	0.00	102	56	2.8%	BDL	0.4	23.2	4.3	14.5	0.9	1.4	1.5	BDL
9 18 2003	34	BMg	6.0	0.00	103	85	-13.8%	BDL	0.3	22.7	5.4	10.7	0.8	0.9	1.0	BDL
9 18 2003	26	BMh	6.0	0.10	99	95	2.4%	3.6	0.2	19.7	8.3	17.0	0.9	0.5	0.5	BDL
9 18 2003	33	BN	5.6	13.30	193	179	3.5%	2.5	0.2	45.3	3.8	24.8	2.6	3.3	2.6	4.5
9 18 2003	39	BO	6.3	0.54	77	76	-3.4%	7.1	0.5	15.9	5.1	11.2	0.9	0.9	1.0	BDL
9 18 2003	40	BO	6.2	0.54	77	75	1.1%	5.1	0.9	15.4	5.0	9.4	0.9	1.7	1.6	BDL
9 18 2003	43	BOa	6.6	4.60	512	561	18.4%	33.5	0.5	130.6	7.6	111.8	2.0	14.4	9.1	9.3
9 18 2003	[redacted]										5.1	16.7	1.2	2.1	2.2	4.8

Plymouth Well Sampling Summary

Updated 38519.0 SVK

NM = not measured BDL = below detection limit
NS = not sampled DND = did not detect
If listed as 0; below 1, rounded, but above detection limit

Sample Date	Sample ID	Borehole ID	pH	DO (mg/L)	Measured Conductivity (mS/cm)	Calc Conductivity (mS/cm)	Net Charge	HCO_3^- Conc. (mg/L)	Acetate Conc. (mg/L)	Cl^- Conc. (mg/L)	SO_4^{-2} Conc. (mg/L)	Na^+ Conc. (mg/L)	K^+ Conc. (mg/L)	Ca^{+2} Conc. (mg/L)	Mg^{+2} Conc. (mg/L)	Fe^{+2} Conc. (mg/L)
9 18 2003	38	BOc	6.8	4.30	838	781	0.7%	59.1	0.5	219.4	12.7	135.3	2.0	12.1	12.0	13.8
9 18 2003	47	BOd	6.6	4.43	374	374	6.4%	32.0	0.9	88.8	6.5	54.4	3.0	11.2	7.5	7.8
9 18 2003	48	BOe	6.7	0.61	153	143	4.0%	32.5	0.2	19.7	11.1	20.2	1.0	2.5	2.6	7.2
9 18 2003	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	11.9	27.1	1.6	6.2	5.1	5.6
9 18 2003	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10.1	1729.2	9.2	282.6	373.2	BDL
9 18 2003	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.3	1281.9	7.8	432.9	495.7	BDL
9 18 2003	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5.8	3598.3	17.7	1018.6	852.2	7.2
9 18 2003	22	BQ	5.9	0.09	69	65	2.8%	2.3	0.4	13.5	4.5	9.7	0.8	0.7	1.0	BDL
9 18 2003	35	BR	6.0	4.10	73	N A	N A	BDL	0.3	15.0	4.9	NS	NS	NS	NS	BDL
9 18 2003	85	BS	6.1	4.10	66	64	-3.0%	5.4	0.3	11.8	4.8	9.0	0.8	1.1	0.9	BDL
9 18 2003	57	BTa	7.1	0.17	471	811	1.3%	123.4	0.3	214.8	2.4	169.9	1.6	8.4	6.0	7.8
9 18 2003	59	BTb	7.3	0.16	234	232	3.7%	63.4	0.3	33.0	11.8	42.7	0.6	1.5	1.4	BDL
9 18 2003	60	BTb	7.3	0.16	234	232	2.5%	64.5	0.2	32.9	12.4	43.1	0.6	2.2	1.7	BDL
9 18 2003	58	BTc	7.2	0.17	205	209	5.5%	48.8	0.2	32.4	9.1	35.5	0.7	4.6	4.1	1.1
9 18 2003	85	BTd	7.0	0.27	206	197	1.4%	60.4	0.7	27.8	6.9	38.5	0.4	2.4	2.2	1.1
9 18 2003	56	BTe	7.2	0.18	187	182	-0.8%	59.3	2.6	26.1	4.0	38.3	0.4	1.1	0.9	BDL
9 18 2003	55	BTf	6.8	0.15	143	137	8.3%	32.6	0.2	19.2	4.7	21.6	0.6	4.0	2.9	2.3
9 18 2003	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4.4	332.2	3.1	133.3	156.0	1.1
9 18 2003	54	BTh	6.6	0.16	142	134	9.6%	22.6	0.3	23.8	3.1	25.6	0.9	1.6	1.4	2.3
9 18 2003	87	BTi	6.3	4.89	113	110	-1.3%	11.5	0.4	21.2	9.1	19.0	1.1	0.8	0.8	BDL
9 18 2003	55	BTj	6.6	0.14	172	120	4.3%	15.1	0.3	21.4	7.0	19.6	0.9	1.7	1.6	2.3
9 18 2003	83	BTk	7.1	0.27	376	353	1.1%	115.6	1.6	60.1	2.3	81.8	0.6	1.7	0.9	1.3
9 18 2003	64	BU	7.1	1.65	138	132	7.1%	33.1	1.2	20.8	2.5	31.7	0.2	0.1	0.0	BDL
9 18 2003	89	BX	6.7	3.50	111	103	3.2%	30.3	1.3	11.5	4.5	10.9	1.2	5.9	2.5	1.6
9 18 2003	90	BX	6.7	3.50	111	103	2.6%	31.0	0.3	11.7	4.1	9.0	1.3	6.5	2.8	1.6
9 18 2003	62	BY	6.7	0.12	74	71	2.2%	BDL	0.2	13.6	4.8	11.3	0.8	1.1	0.8	BDL
9 18 2003	67	BZ	7.0	0.16	124	121	8.3%	33.4	0.2	16.0	2.5	26.2	0.5	0.9	0.5	2.4
9 18 2003	76	CA	6.7	6.05	189	177	5.7%	31.5	0.5	25.9	15.1	27.0	1.0	3.9	4.4	BDL
9 18 2003	66	CB	6.4	3.18	464	444	4.4%	23.6	0.4	119.0	10.5	70.6	1.8	10.7	8.3	BDL
9 18 2003	52	CC	6.5	3.21	78	76	1.8%	BDL	0.2	15.8	4.6	11.6	1.0	1.1	1.0	BDL
9 18 2003	51	CD	6.6	0.17	304	281	3.2%	32.2	0.3	57.6	10.9	37.5	1.1	7.1	6.4	10.7
9 18 2003	1	Field blank 1	5.2	NM	11	3	N A	BDL	0.4	0.1	0.3	0.8	0.0	0.0	0.0	BDL
9 18 2003	117	Field blank 2	6.0	NM	6	4	N A	BDL	0.4	0.4	0.4	0.8	0.0	0.1	0.0	BDL
9 18 2003	27	ST	5.7	0.09	725	690	0.0%	4.2	0.3	223.3	4.6	113.6	4.5	11.4	10.2	BDL
9 18 2003	111	UB101	5.2	7.39	70	61	8.0%	BDL	0.5	12.2	5.7	9.8	0.8	0.8	0.8	BDL
9 18 2003	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5.5	0.0	0.0	0.0	0.0	BDL
9 18 2003	9	UB201	5.0	7.59	545	505	-0.9%	BDL	0.4	158.2	9.6	92.0	1.3	8.1	1.9	BDL
9 18 2003	10	UB201	5.0	7.59	545	505	-1.0%	BDL	0.3	157.4	9.3	90.3	1.4	8.6	2.0	BDL
9 18 2003	12	UB202	5.0	7.51	508	548	-0.8%	BDL	0.2	172.3	9.6	101.1	1.5	8.1	1.8	BDL
9 18 2003	7	UB203	5.4	7.22	64	59	5.5%	BDL	0.2	11.2	6.3	10.8	0.6	0.3	0.2	BDL
9 18 2003	8	UB204	5.4	7.05	62	58	4.6%	BDL	0.6	11.7	5.3	9.5	0.7	0.6	0.5	BDL
9 18 2003	11	UB205	5.5	6.59	60	54	6.1%	BDL	0.4	10.7	4.9	8.2	0.6	0.8	0.8	BDL
9 18 2003	108	UC101	5.3	8.10	56	54	4.3%	BDL	0.5	9.6	6.5	8.5	0.8	0.6	0.6	BDL
9 18 2003	109	UC102	5.5	7.13	65	59	8.5%	1.8	0.6	9.5	6.7	7.4	2.3	1.4	1.0	BDL
9 18 2003	110	UC102	5.5	7.13	65	59	8.7%	N A	0.9	9.5	7.4	5.3	2.3	2.1	1.5	BDL
9 18 2003	2	UC201	4.9	7.37	515	479	1.9%	BDL	0.3	147.8	5.6	87.8	1.5	6.3	3.4	BDL
9 18 2003	3	UC202	5.3	7.19	131	125	2.3%	BDL	0.3	24.4	16.3	23.2	1.0	0.6	0.3	BDL
9 18 2003	5	UC203	5.5	6.86	100	95	2.4%	BDL	0.3	25.0	3.0	15.7	2.0	0.8	0.7	BDL
9 18 2003	4	UC204	5.3	6.06	106	99	5.7%	BDL	0.4	22.0	6.3	12.7	5.1	1.3	1.4	BDL
9 18 2003	6	UC205	5.4	4.14	105	83	16.3%	2.6	0.3	11.8	11.7	9.9	5.3	2.2	2.3	BDL
9 18 2003	17	West Weir	6.5	0.00	279	252	9.4%	62.0	0.3	41.9	5.0	35.8	2.7	16.3	2.6	1.6
10 30 2003	105	AA	5.9	8.03	604	557	0.7%	7.6	0.3	164.8	16.9	85.4	2.6	8.3	12.3	BDL
10 30 2003	18	AB	5.3	3.35	419	399	2.3%	5.3	0.2	107.2	20.1	59.3	2.6	6.5	9.4	BDL
10 30 2003	17	AC	5.3	3.59	143	135	5.8%	5.2	0.3	29.3	9.6	17.0	0.6	2.1	4.8	BDL
10 30 2003	16	AD	6.1	7.16	99	93	10.3%	14.1	0.3	14.6	5.6	13.3	0.4	2.3	2.9	BDL
10 30 2003	93	AE	6.6	1.90	146	135	7.8%	29.1	0.1	21.4	5.3	25.9	0.6	2.6	1.5	BDL
10 30 2003	94	AF	6.4	0.69	362	325	2.1%	31.9	0.3	72.3	2.7	51.4	1.4	6.5	5.9	7.2
10 30 2003	95	AG	6.6	0.83	382	360	2.7%	35.3	0.2	86.6	12.0	64.0	1.4	4.4	5.0	1.6
10 30 2003	96	AH	7.0	0.72	141	133	7.7%	26.7	0.1	16.4	12.2	24.3	0.5	2.3	1.9	0.2
10 30 2003	19	AI	5.8	1.31	212	198	7.5%	21.8	0.5	45.3	2.2	22.8	0.4	5.2	8.5	BDL
10 30 2003	20	AJ	5.9	2.10	202	199	2.8%	18.7	0.4	44.0	9.8	37.8	1.2	1.8	1.2	BDL
10 30 2003	92	AK	6.0	1.11	421	394	1.3%	12.9	0.2	112.2	5.0	48.5	2.0	12.2	10.4	BDL
10 30 2003	97	AL	6.6	0.95	270	245	6.8%	53.2	0.1	42.2	6.1	44.8	0.9	5.3	3.4	3.8
10 30 2003	23	AN	6.4	1.20	203	190	6.6%	43.6	0.4	34.4	2.2	42.5	0.7	0.9	0.8	BDL
10 30 2003	21	AO	6.3	3.03	225	210	8.7%	38.6	0.3	35.2	9.1	48.4	0.7	0.8	0.5	BDL
10 30 2003	22	AO	6.3	3.03	225	208	8.0%	41.6	0.2	35.1	8.6	47.3	0.7	1.0	0.6	BDL
10 30 2003	29	AP	6.3	2.35	245	237	5.2%	37.8	1.5	48.2	4.6	49.9	1.0	1.5	0.8	3.2
10 30 2003	38	AQ	6.3	1.73	562	516	2.5%	30.1	0.1	143.5	7.3	91.7	1.5	9.0	6.0	3.0
10 30 2003	99	AS	6.8	0.83	75	65	14.7%	10.2	0.2	9.0	5.1	14.3	0.5	0.8	0.5	BDL
10 30 2003	80	AT	6.5	1.77	361	338	4.6%	44.4	0.2	66.3	21.9	57.9	0.9	7.5	5.3	1.4
10 30 2003	32	AU	5.6	2.55	77	65	10.1%	2.5	0.3	13.4	4.9	11.4	0.8	1.0	1.0	BDL
10 30 2003	33	AV	6.1	6.65	164	155	19.4%	11.1	0.2	25.8	11.5	33.2	1.0	1.6	1.9	BDL
10 30 2003	131	AW	5.7	2.15	56	70	0.0%	2.1	0.4	14.1	5.1	11.0	1.0	1.2	0.9	BDL
10 30 2003	31	AX	5.9	7.88	72	67	9.3%	BDL	0.2	13.7	5.7	10.8	0.8	0.7	1.0	BDL
10 30 2003	33	AY	6.0	6.05	118	98	18.5%	10.8	0.1	16.6	4.0	18.1	0.8	1.9	2.0	BDL
10 30 2003	122	AZ	5.2	0.83	117	137	0.0%	0.8	0.1	34.4	3.9	21.1	1.7	3.3	2.2	BDL
10 30 2003	123	BA	5.2	6.61	83	104	0.0%	1.0	0.2	25.2	5.7	17.1	1.1	1.2	1.0	BDL
10 30 2003	124	BB	5.3	2.71	60	75	0.6%	1.1	0.1	16.5	4.5	11.8	1.0	1.0	1.1	BDL
10 30 2003	45	BC	5.8	1.51	74	72	4.0%	3.7	0.2	12.4	8.7	12.8	0.7	0.5	0.5	BDL
10 30 2003	81	BCa	6.6	0.94	503	461	3.9%	64.2	0.1	108.7	5.0	80.9	1.2	10.3	6.2	6.7
10 30 2003	82	BCb	6.7	0.68	673	601	1.8%	67.7	0.3	154.9	7.7	88.5	1.2	17.2	13.6	9.1
10 30 2003	83	BCc	6.7	0.70	493	460	-1.6%	42.1	0.2	118.1	7.1	60.8	2.0	12.8	9.2	14.2
10 30 2003	84	BCd	6.8	0.63	345	328	-3.2%	26.9	0.2	81.6	8.2	37.8	1.2	11.1	6.2	11.4
10 30 2003	85	BCe	6.8	0.69	158	138	0.5%	37.0	0.1	35.4	3.3	21.3	0.4	8.9	4.0	4.8

Plymouth Well Sampling Summary

Updated 38519.0 SVK

NM = not measured
NS = not sampled
BDL = below detection limit
DND = did not detect
if listed as 0: below 1, rounded, but above detection limit

Sample Date	Sample ID	Borehole ID	pH	DO (mg/L)	Measured Conductivity (mS/cm)	Calc Conductivity (mS/cm)	Net Charge	HCO_3^- Conc. (mg/L)	Acetate Conc. (mg/L)	Cl^- Conc. (mg/L)	SO_4^{-2} Conc. (mg/L)	Na^+ Conc. (mg/L)	K^+ Conc. (mg/L)	Ca^{+2} Conc. (mg/L)	Mg^{+2} Conc. (mg/L)	Fe^{+2} Conc. (mg/L)
10 30 2003	36	BCf	6.9	1.62	495	375	4.3%	76.5	0.1	79.1	0.9	62.1	1.3	9.0	7.7	3.4
10 30 2003	37	BCg	6.9	0.66	452	416	-0.1%	39.1	0.2	111.2	5.8	45.5	0.9	14.9	13.4	NS
10 30 2003	38	BCh	6.9	1.47	521	490	0.5%	49.3	0.1	130.9	1.8	67.4	1.1	16.0	10.4	6.5
10 30 2003	39	BCi	6.8	0.64	439	409	-3.3%	28.9	0.1	109.0	5.4	52.4	1.4	8.9	8.1	16.0
10 30 2003	44	BCj	6.1	1.73	131	122	1.5%	8.3	0.1	28.4	3.0	15.1	1.2	2.0	1.4	3.4
10 30 2003	39	BD	6.6	0.76	655	592	3.6%	65.7	0.2	149.2	9.7	102.3	1.5	13.1	9.1	6.8
10 30 2003	40	BE	6.5	3.89	116	156	1.7%	11.5	0.2	36.5	6.3	24.2	1.1	2.9	2.1	BDL
10 30 2003	41	BF	6.1	3.99	85	78	10.7%	4.7	0.1	13.0	7.9	15.1	0.8	0.7	0.5	BDL
10 30 2003	42	BF'	6.1	0.70	85	83	3.3%	5.9	0.1	14.2	9.2	13.3	0.8	1.3	0.9	BDL
10 30 2003	48	BG	6.4	0.77	478	439	3.8%	55.4	0.3	131.4	5.4	75.6	1.8	8.4	7.4	9.0
10 30 2003	47	BH	5.7	0.69	70	65	5.3%	3.3	0.2	12.9	6.3	10.7	0.8	1.0	0.9	BDL
10 30 2003	45	BI	5.6	6.25	255	242	2.8%	2.9	0.1	63.3	11.3	41.9	1.6	2.5	2.4	BDL
10 30 2003	28	BJ	5.9	1.19	384	353	4.0%	9.5	0.2	100.1	4.6	53.6	2.0	6.7	7.5	BDL
10 30 2003	24	BK	5.6	5.65	74	69	6.2%	3.4	0.4	13.7	5.1	11.4	0.8	0.9	0.8	BDL
10 30 2003	25	BL	6.4	0.80	152	135	12.9%	20.7	0.2	22.9	5.6	27.0	0.6	1.7	1.9	BDL
10 30 2003	53	BM	6.2	1.00	82	79	1.5%	5.9	0.2	14.1	8.6	13.5	0.8	0.6	0.6	BDL
10 30 2003	71	BMa	6.6	0.73	495	456	0.5%	48.9	0.3	110.5	12.1	65.9	2.1	11.1	9.0	10.4
10 30 2003	72	BMb	6.7	0.58	435	409	2.4%	41.8	0.3	95.9	8.4	55.7	2.3	11.0	8.6	8.6
10 30 2003	73	BMc	6.2	5.16	440	414	0.0%	15.8	0.3	119.5	7.5	63.5	1.6	7.6	7.4	BDL
10 30 2003	74	BMd	5.8	5.38	327	317	0.5%	5.3	0.3	94.1	2.5	46.8	2.3	6.7	5.1	BDL
10 30 2003	75	BMe	5.6	5.38	243	229	1.4%	4.2	0.3	65.4	2.7	30.9	1.8	5.1	4.7	BDL
10 30 2003	76	BMf	5.6	4.57	174	167	2.8%	6.1	0.3	42.7	5.2	25.5	1.7	2.7	2.6	BDL
10 30 2003	77	BMg	5.6	4.02	133	125	2.7%	6.9	0.1	28.8	7.0	21.2	1.2	1.3	1.4	BDL
10 30 2003	78	BMh	5.6	3.70	149	143	1.2%	5.0	0.2	32.8	10.0	25.1	1.1	0.9	1.0	BDL
10 30 2003	79	BMh	5.6	5.70	142	143	-1.0%	4.9	0.2	33.4	10.2	23.0	1.1	1.3	1.4	BDL
10 30 2003	100	BN	6.1	0.90	430	402	-0.8%	6.3	0.2	121.0	5.0	56.0	3.2	8.7	7.5	1.6
10 30 2003	63	BO	6.2	0.72	73	74	-6.6%	12.2	0.1	13.7	5.2	10.5	0.9	0.9	1.1	BDL
10 30 2003	60	BOa	7.0	0.77	354	333	2.3%	68.4	0.4	62.8	11.9	62.6	1.3	5.0	3.3	3.2
10 30 2003	61	BOb	6.9	0.58	375	350	1.6%	44.6	0.2	80.4	8.5	55.9	1.1	6.4	6.1	5.8
10 30 2003	62	BOc	6.8	0.34	778	726	-1.5%	61.1	0.3	195.8	20.1	111.9	2.2	13.9	13.7	16.6
10 30 2003	64	BOd	6.5	0.37	418	394	0.9%	27.5	0.3	98.4	8.5	54.7	1.7	7.8	8.0	14.8
10 30 2003	65	BOe	6.7	0.74	390	357	-1.5%	42.4	0.3	77.9	20.7	62.1	1.4	3.5	3.9	12.0
10 30 2003	66	BOf	6.6	0.82	540	502	0.5%	35.7	0.3	132.3	11.0	83.6	2.1	6.4	7.3	11.1
10 30 2003	67	BOf	6.6	0.82	533	515	-2.5%	36.6	0.3	139.9	12.0	82.1	2.1	6.6	7.5	11.1
10 30 2003	68	BOg	6.4	0.93	245	241	-1.8%	19.4	0.2	58.9	11.1	35.7	1.6	3.6	4.4	BDL
10 30 2003	69	BOh	5.8	7.25	338	318	0.9%	5.9	0.2	85.6	10.0	40.9	1.9	6.8	3.4	BDL
10 30 2003	70	BP	6.5	0.34	387	360	-0.8%	21.7	0.2	94.4	5.3	43.7	1.5	9.0	3.6	12.3
10 30 2003	90	BQ	6.4	0.83	69	68	-1.6%	6.0	0.2	13.8	5.0	10.1	0.8	0.7	1.0	BDL
10 30 2003	91	BQ	6.4	0.80	69	62	8.2%	BDL	0.1	13.2	4.8	8.2	0.8	1.0	1.6	BDL
10 30 2003	101	BR	5.9	0.78	76	69	11.2%	BDL	0.3	14.4	5.0	10.9	0.9	1.1	1.1	BDL
10 30 2003	102	BR	5.9	0.78	76	71	3.2%	4.4	0.2	14.4	5.0	9.1	0.9	1.4	1.6	BDL
10 30 2003	26	BS	5.4	1.30	65	60	9.9%	2.0	0.1	11.6	4.6	9.0	0.8	1.3	1.0	BDL
10 30 2003	49	BTa	6.8	0.50	577	529	3.3%	65.3	0.2	136.5	2.1	105.0	1.0	6.1	5.1	1.9
10 30 2003	50	BTb	6.9	0.43	599	552	0.5%	61.1	1.0	145.4	4.6	67.8	0.9	21.1	15.6	5.8
10 30 2003	51	BTc	6.9	0.63	378	390	1.5%	60.9	0.1	122.9	5.3	65.2	0.8	16.4	12.8	5.3
10 30 2003	52	BTd	6.9	0.52	366	344	2.4%	50.0	0.1	77.7	6.1	47.3	0.8	11.0	8.1	4.2
10 30 2003	104	BTe	6.7	0.57	337	321	3.7%	24.2	0.1	76.5	4.3	40.9	0.9	11.9	7.6	5.6
10 30 2003	53	BTf	6.9	0.63	289	277	0.1%	45.9	0.3	60.0	3.4	32.8	0.8	10.6	6.7	6.3
10 30 2003	54	BTg	6.8	0.53	454	425	-2.4%	33.6	0.3	114.5	2.3	39.5	1.2	16.5	13.2	13.5
10 30 2003	55	BTg	6.8	0.53	454	425	-3.0%	35.2	0.3	115.1	3.1	38.4	1.3	16.9	13.6	13.3
10 30 2003	56	BTh	6.8	0.55	339	321	-1.5%	35.4	0.2	78.2	3.2	31.2	0.9	12.2	9.5	9.0
10 30 2003	57	BTi	6.6	4.88	98	100	-3.9%	15.9	0.2	17.6	8.1	17.6	0.8	0.6	0.6	BDL
10 30 2003	58	BTj	6.6	0.59	115	115	0.1%	20.0	0.5	20.4	7.1	22.7	0.6	0.5	0.4	BDL
10 30 2003	59	BTk	7.0	0.88	481	453	3.0%	123.6	0.3	85.5	3.6	101.1	1.1	3.6	2.3	1.7
10 30 2003	106	BU	6.7	0.35	155	141	8.2%	25.6	0.8	25.3	3.8	31.4	0.3	0.6	0.5	BDL
10 30 2003	43	BX	6.5	0.85	114	99	13.1%	22.7	0.2	12.3	4.1	11.2	1.3	6.3	2.6	BDL
10 30 2003	35	BY	6.5	0.70	102	99	0.7%	12.8	0.3	19.7	4.3	13.5	0.8	2.2	2.0	BDL
10 30 2003	34	BZ	6.4	0.80	631	574	3.4%	42.6	0.2	156.3	2.7	115.4	1.6	4.3	3.1	12.9
10 30 2003	15	CA	5.9	4.93	540	505	2.5%	12.4	0.2	151.9	4.5	50.8	2.0	16.1	21.4	BDL
10 30 2003	27	CB	6.0	2.79	359	339	7.0%	20.1	0.3	82.7	7.9	53.3	1.3	7.4	6.5	BDL
10 30 2003	14	CC	5.6	3.43	82	79	4.6%	3.1	0.4	16.8	5.1	12.0	0.8	1.2	1.2	BDL
10 30 2003	13	CD	6.2	1.00	316	288	3.5%	24.8	0.2	65.2	8.5	30.4	0.9	9.7	9.4	9.1
10 30 2003	36	East Weir	6.5	7.15	59	53	19.6%	11.1	0.3	6.1	1.6	7.1	2.3	3.0	0.8	BDL
10 30 2003	1	Field blank 1	5.7	NM	3	4	35.0%	BDL	0.2	0.3	0.5	1.0	0.1	0.1	0.0	BDL
10 30 2003	103	ST	5.6	4.28	357	527	1.5%	4.2	0.3	155.5	10.4	85.8	3.8	8.8	8.3	BDL
10 30 2003	118	UB101	6.2	6.60	47	55	9.2%	BDL	0.2	10.3	5.9	8.7	0.8	0.8	0.7	BDL
10 30 2003	119	UB101	6.2	6.60	47	55	8.8%	BDL	0.2	10.3	5.5	7.2	0.8	1.3	1.1	BDL
10 30 2003	120	UB102	5.7	6.33	48	58	10.8%	BDL	0.4	11.0	5.7	9.3	0.8	1.0	0.8	BDL
10 30 2003	9	UB201	5.0	8.56	417	417	1.5%	BDL	0.3	124.0	9.6	76.1	1.3	6.9	1.6	BDL
10 30 2003	10	UB202	4.9	8.92	331	314	5.0%	BDL	0.1	90.1	5.5	56.4	1.1	5.7	2.1	BDL
10 30 2003	11	UB201	4.9	8.82	331	322	1.5%	BDL	0.2	95.3	5.9	54.6	1.1	6.4	2.1	BDL
10 30 2003	7	UB203	5.2	8.81	65	62	9.0%	0.9	0.2	11.8	5.9	10.7	1.0	0.7	0.5	BDL
10 30 2003	8	UB204	5.2	8.74	65	60	7.4%	0.8	0.1	12.4	4.6	7.8	0.8	1.4	1.3	BDL
10 30 2003	12	UB205	5.3	8.02	86	77	11.2%	1.3	0.2	16.3	4.8	11.3	0.3	1.6	1.7	BDL
10 30 2003	116	UC101	6.4	9.47	58	48	16.4%	BDL	0.1	8.1	5.0	8.4	0.8	0.6	0.6	BDL
10 30 2003	117	UC102	6.0	6.19	67	59	10.4%	BDL	0.2	9.6	7.7	7.2	2.5	1.4	1.0	BDL
10 30 2003	5	UC201	5.1	8.44	537	459	2.6%	BDL	0.4	140.8	5.5	85.9	1.8	8.1	4.3	BDL
10 30 2003	2	UC202	5.4	8.34	172	165	4.8%	BDL	0.2	42.0	7.9	29.0	1.4	1.8	1.2	BDL
10 30 2003	3	UC203	5.5	8.32	91	88	5.8%	BDL	0.5	16.8	10.2	14.9	2.3	0.6	0.5	BDL
10 30 2003	4	UC204	5.5	7.45	73	65	8.8%	2.1	0.6	10.3	8.5	9.1	4.1	0.9	0.8	BDL
10 30 2003	6	UC205	5.5	5.03	109	95	13.3%	5.2	0.3	12.7	11.9	10.3	5.4	2.4	2.4	BDL
10 30 2003	37	West Weir	6.6	6.77	45	104	12.2%	14.4	0.2	17.3	5.0	18.7	0.6	3.7	0.7	BDL
11 11 2003	dry	AA	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
11 11 2003	87	AB	5.8	2.32	378	N/A	-1.5%	12.2	0.3	95.8	23.3	52.8	2.1	5.1	8.4	NS

Plymouth Well Sampling Summary

Updated 38519.0 SVK

NM = not measured
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Sample Date	Sample ID	Borehole ID	pH	DO (mg/L)	Measured Conductivity (mS/cm)	Calc Conductivity (mS/cm)	Net Charge	HCO_3^- Conc. (mg/L)	Acetate Conc. (mg/L)	Cl^- Conc. (mg/L)	SO_4^{-2} Conc. (mg/L)	Na^+ Conc. (mg/L)	K^+ Conc. (mg/L)	Ca^{+2} Conc. (mg/L)	Mg^{+2} Conc. (mg/L)	Fe^{+2} Conc. (mg/L)
11 11 2003	83	AB	5.8	2.32	378	367	-1.7%	14.1	0.3	94.3	22.8	51.1	2.2	5.3	8.7	BDL
11 11 2003	115	AC	5.9	2.91	228	232	-3.5%	16.5	0.3	57.3	12.1	31.6	0.8	2.5	5.6	BDL
11 11 2003	116	AC	5.9	2.91	228	229	-2.9%	15.1	0.2	55.7	12.1	30.2	0.8	3.1	6.0	BDL
11 11 2003	117	AD	5.9	2.91	299	NA	NA	22.5	0.1	67.1	7.3	NS	NS	NS	NS	BDL
11 11 2003	24	AE	5.9	0.93	100	94	10.3%	18.1	0.2	14.2	4.1	18.8	0.4	1.4	0.9	BDL
11 11 2003	23	AF	5.7	1.50	303	272	11.7%	33.6	0.2	57.7	2.7	50.9	1.2	4.8	4.2	4.0
11 11 2003	21	AG	5.7	0.99	266	243	10.3%	15.8	0.2	49.9	15.8	44.8	1.3	3.2	3.8	BDL
11 11 2003	22	AG	5.7	0.99	266	241	9.9%	16.1	0.2	49.5	15.8	43.4	1.1	3.4	4.2	BDL
11 11 2003	20	AH	5.7	1.17	98	90	19.0%	8.7	0.1	10.7	10.3	18.1	0.4	1.3	1.2	BDL
11 11 2003	114	AI	6.1	0.77	384	383	-4.7%	35.1	0.2	105.5	1.2	43.9	0.6	9.2	11.7	BDL
11 11 2003	109	AJ	6.3	1.09	247	255	-3.3%	38.6	0.1	59.5	7.1	47.1	1.3	2.1	1.4	BDL
11 11 2003	89	AK	5.9	1.61	383	378	-0.8%	13.9	0.1	106.8	8.9	47.0	1.7	12.5	8.0	1.2
11 11 2003	42	AL	6.2	0.54	194	193	1.2%	44.5	0.1	30.1	10.0	33.2	0.7	3.2	2.6	3.2
11 11 2003	dry	AM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
11 11 2003	110	AN	6.5	1.34	195	202	-3.1%	69.6	0.1	32.1	2.4	43.2	0.6	0.7	0.6	BDL
11 11 2003	112	AO	6.5	1.10	195	250	-2.0%	73.8	0.1	41.9	6.7	52.9	0.7	1.0	0.7	1.1
11 11 2003	111	AP	6.3	1.54	288	281	-2.9%	61.3	0.1	62.1	4.3	55.3	1.0	2.5	1.6	2.9
11 11 2003	53	AQ	6.0	1.20	590	557	3.3%	27.0	0.1	159.0	7.1	102.7	1.6	8.6	5.7	2.9
11 11 2003	57	AR	6.2	1.30	457	437	0.4%	47.6	0.3	109.6	21.5	76.1	3.1	7.5	7.3	BDL
11 11 2003	68	AS	6.5	0.55	93	91	4.2%	28.1	0.2	8.5	7.1	19.0	0.5	0.8	0.6	BDL
11 11 2003	32	AT	6.3	0.44	319	319	0.7%	57.7	0.1	63.6	14.9	53.2	1.0	6.7	5.1	BDL
11 11 2003	33	AT	6.3	0.44	319	319	0.1%	59.2	0.1	63.5	14.7	51.6	0.9	7.3	5.4	BDL
11 11 2003	51	AU	5.9	1.76	73	75	-2.5%	7.6	0.1	13.7	7.1	11.3	0.8	1.0	0.9	BDL
11 11 2003	35	AV	5.9	9.44	193	188	1.7%	14.7	0.1	44.8	7.1	31.7	0.9	2.1	2.5	BDL
11 11 2003	122	AW	5.9	2.24	69	74	0.0%	9.0	0.1	14.3	4.8	11.2	0.9	1.0	0.9	BDL
11 11 2003	41	AX	6.4	10.21	67	72	-8.6%	10.6	0.1	13.0	6.5	10.3	0.8	0.6	0.9	BDL
11 11 2003	36	AY	5.9	8.90	155	147	5.7%	17.7	0.1	31.5	3.8	23.8	1.0	2.6	2.7	BDL
11 11 2003	124	AZ	5.9	3.70	163	160	0.0%	9.6	0.1	41.5	4.0	21.8	1.8	3.6	2.3	BDL
11 11 2003	123	BA	5.9	6.08	135	133	0.0%	5.0	0.2	33.7	4.8	21.5	1.3	1.7	1.4	BDL
11 11 2003	125	BB	5.9	4.85	104	105	0.0%	8.7	0.1	24.9	4.1	15.1	1.2	1.4	1.7	BDL
11 11 2003	52	BC	5.8	0.24	75	75	-3.7%	6.1	0.2	13.0	9.7	12.9	0.0	0.5	0.5	BDL
11 11 2003	78	BCa	6.8	0.82	421	415	-3.9%	91.3	0.1	88.3	8.1	61.8	0.9	11.2	7.0	6.4
11 11 2003	73	BCb	6.6	0.83	477	463	-1.5%	71.2	0.1	111.5	6.6	63.2	0.9	13.5	10.6	7.5
11 11 2003	80	BCc	6.5	0.76	521	501	-5.4%	57.9	0.2	130.8	7.0	67.3	2.0	12.2	8.7	15.8
11 11 2003	75	BCd	6.4	0.65	324	471	-4.6%	28.1	0.1	139.5	5.7	57.7	1.4	13.4	8.2	19.5
11 11 2003	74	BCe	6.8	1.00	168	172	-10.2%	42.7	0.1	33.8	2.2	21.0	0.4	5.4	2.4	4.7
11 11 2003	56	BCf	6.3	0.70	292	191	-49.2%	62.7	0.2	43.7	11.5	0.8	1.1	5.8	6.1	3.2
11 11 2003	62	BCg	6.3	0.16	451	452	0.3%	40.9	0.1	121.6	3.4	58.7	0.0	12.6	12.4	6.3
11 11 2003	63	BCh	6.5	0.16	624	590	-0.4%	84.3	0.4	150.7	5.1	98.2	1.3	12.9	9.2	6.3
11 11 2003	64	BCi	6.5	0.18	420	403	-3.4%	43.9	0.2	58.3	11.2	57.7	1.3	7.7	6.7	12.3
11 11 2003	79	BCj	6.8	4.09	144	150	-12.6%	31.4	0.1	32.5	5.4	21.4	1.5	2.2	1.5	BDL
11 11 2003	60	BD	6.3	0.11	613	591	2.1%	67.8	0.1	134.2	31.1	93.1	1.4	13.6	9.9	7.5
11 11 2003	61	BE	6.4	5.15	160	165	-5.3%	18.8	0.1	39.8	5.6	23.7	1.1	3.1	2.2	BDL
11 11 2003	59	BF	6.3	0.20	84	89	-5.8%	16.1	0.1	14.0	10.6	14.5	0.8	0.7	0.5	BDL
11 11 2003	99	BG	6.2	0.18	654	611	-0.7%	65.5	0.1	159.2	12.1	109.0	1.8	10.8	12.0	10.7
11 11 2003	91	BH	6.6	0.18	68	78	-18.4%	20.7	0.2	12.9	6.2	10.5	0.7	0.7	0.8	BDL
11 11 2003	94	BI	6.0	5.03	205	209	-3.5%	12.3	0.2	53.8	8.9	32.2	1.3	2.5	2.6	BDL
11 11 2003	40	BJ	6.4	9.37	159	153	0.5%	32.8	0.1	22.9	12.2	23.8	1.0	1.3	1.4	BDL
11 11 2003	95	BK	6.9	0.51	73	87	-22.2%	28.1	0.1	14.3	5.4	11.6	0.8	0.8	0.7	BDL
11 11 2003	30	BL	5.8	8.36	481	458	1.0%	19.7	0.2	135.9	5.3	75.7	1.3	7.2	8.5	BDL
11 11 2003	29	BM	5.9	0.42	80	85	-8.6%	13.8	0.1	14.5	8.3	13.8	0.7	0.5	0.5	BDL
11 11 2003	26	BMa	5.9	0.35	380	357	4.0%	30.6	0.2	85.0	9.6	52.0	1.6	8.5	7.7	7.0
11 11 2003	27	BMb	6.0	0.27	340	328	3.0%	30.8	0.2	77.6	9.6	50.9	1.5	7.4	5.6	4.3
11 11 2003	28	BMc	5.7	1.94	375	554	-0.8%	15.6	0.1	169.1	8.0	83.0	1.2	11.0	11.1	BDL
11 11 2003	25	BMd	5.3	7.44	319	311	-9.4%	5.0	0.1	93.1	2.8	43.7	2.2	6.7	3.5	BDL
11 11 2003	46	BMe	5.5	5.18	202	200	-0.5%	6.9	0.1	55.8	3.4	28.9	1.6	3.5	3.3	BDL
11 11 2003	45	BMf	5.7	2.93	128	131	-4.7%	16.3	0.1	30.0	5.1	19.3	1.2	1.8	1.8	BDL
11 11 2003	50	BMg	5.6	3.37	137	143	-5.1%	11.7	1.3	33.1	8.3	22.8	1.2	1.3	1.3	BDL
11 11 2003	49	BMh	5.8	6.47	142	141	-1.2%	9.7	0.2	33.5	7.1	24.0	1.1	1.1	1.2	BDL
11 11 2003	43	BN	5.6	1.16	497	480	-1.6%	9.5	0.1	148.5	4.9	68.6	3.3	10.2	8.9	BDL
11 11 2003	44	BN	5.6	1.16	497	477	-2.2%	9.9	0.1	148.0	4.8	65.8	3.3	10.4	9.0	BDL
11 11 2003	17	BO	5.5	0.35	72	74	-1.6%	6.5	0.1	14.8	5.8	11.1	0.9	0.8	1.0	BDL
11 11 2003	47	BOa	6.0	0.50	449	428	3.4%	27.5	0.1	111.4	9.7	70.6	1.6	8.5	6.5	5.3
11 11 2003	38	BOb	6.3	0.40	443	438	0.1%	45.1	0.1	103.3	13.6	58.9	1.3	10.3	10.2	7.8
11 11 2003	37	BOc	6.1	0.43	501	471	-0.1%	30.6	0.1	123.6	8.8	62.1	1.6	11.5	11.0	12.7
11 11 2003	39	BOd	6.4	0.47	305	295	-3.3%	33.9	0.2	69.9	7.0	39.3	1.2	5.4	6.0	9.7
11 11 2003	14	BOe	6.0	0.43	409	389	-0.4%	25.6	0.2	97.7	11.4	61.6	1.7	4.1	5.6	13.4
11 11 2003	15	BOf	6.0	0.39	436	410	-0.5%	21.8	0.1	111.8	8.9	60.7	1.7	6.7	7.5	7.5
11 11 2003	18	BOg	5.3	4.55	364	354	2.2%	6.1	0.1	99.8	9.8	53.1	2.4	5.8	7.4	BDL
11 11 2003	16	BOh	5.9	7.61	171	172	-1.1%	12.2	0.1	42.1	9.5	23.3	1.3	3.0	3.7	BDL
11 11 2003	48	BP	6.3	0.51	347	339	-1.2%	46.6	0.2	66.8	20.5	47.9	1.5	6.7	6.6	10.9
11 11 2003	19	BQ	5.5	4.10	61	62	1.3%	5.0	0.1	11.5	5.5	9.6	0.8	0.6	0.9	BDL
11 11 2003	67	BR	6.2	1.48	75	78	-9.5%	13.4	0.1	15.1	5.2	10.8	0.9	0.9	1.1	BDL
11 11 2003	54	BS	6.1	2.09	66	69	-8.2%	12.3	0.2	12.4	4.9	9.4	0.7	1.2	0.9	BDL
11 11 2003	55	BS	6.1	2.09	66	67	-8.4%	11.4	0.1	12.3	4.9	7.5	0.8	1.7	1.3	BDL
11 11 2003	95	BTa	6.3	0.28	840	727	2.1%	116.3	0.2	203.7	0.5	135.8	1.4	16.8	14.2	5.5
11 11 2003	76	BTb	6.8	0.19	634	613	-1.5%	111.1	0.1	153.3	3.6	110.5	1.0	10.9	7.4	2.8
11 11 2003	77	BTb	6.8	0.19	634	613	-2.8%	113.3	0.1	153.7	3.7	108.5	1.0	11.2	7.6	2.9
11 11 2003	81	BTc	6.7	0.16	436	431	-1.8%	73.2	0.1	104.1	3.7	64.0	0.9	11.1	8.6	3.3
11 11 2003	69	BTd	6.4	0.53	391	383	1.4%	48.9	0.1	92.3	5.2	48.8	0.9	13.4	9.7	4.7
11 11 2003	72	BTe	6.7	0.32	299	295	-1.8%	47.6	0.1	67.7	4.6	43.4	0.7	8.0	4.7	3.6
11 11 2003	71	BTf	6.8	0.51	190	189	-3.1%	34.0	0.1	34.0	5.6	25.8	0.6	5.4	3.4	3.3
11 11 2003	70	BTg	6.6	0.56	347	335	-4.2%	32.1	0.2	35.7	3.2	29.5	0.9	13.4	10.0	11.0
11 11 2003	85	BTh	6.7	0.54	207	211	-7.0%	63.6	0.2	34.5	4.6	23.0	0.4	7.1	5.7	5.3
11 11 2003	84	BTi	7.0	3.85	94	104	-16.4%	28.7	0.1	17.7	7.1	16.3	0.8	0.6	0.5	BDL

Plymouth Well Sampling Summary

Updated 38519.0 SVK

NM = not measured
NS = not sampled
BDL = below detection limit,
DND = did not detect
if listed as 0; below 1, rounded, but above detection limit

Sample Date	Sample ID	Borehole ID	pH	DO (mg/L)	Measured Conductivity (mS/cm)	Calc Conductivity (mS/cm)	Net Charge	HCO_3^- Conc. (mg/L)	Acetate Conc. (mg/L)	Cl^- Conc. (mg/L)	SO_4^{-2} Conc. (mg/L)	Na^+ Conc. (mg/L)	K^+ Conc. (mg/L)	Ca^{+2} Conc. (mg/L)	Mg^{+2} Conc. (mg/L)	Fe^{+2} Conc. (mg/L)
11 11 2003	82	BTJ	6.9	0.49	133	144	-16.3%	48.5	0.1	18.3	10.6	20.4	0.7	1.6	1.5	4.3
11 11 2003	85	BTL	6.6	0.18	841	782	0.4%	179.5	0.2	179.9	5.3	173.7	1.6	5.4	4.1	3.8
11 11 2003	93	BU	6.5	0.64	193	193	-0.1%	32.9	0.1	43.1	2.9	40.2	0.3	0.4	0.4	BDL
11 11 2003	58	BX	6.5	0.21	114	112	-0.6%	37.1	0.2	13.1	4.0	11.4	1.3	6.3	2.6	1.5
11 11 2003	107	BY	6.5	0.60	100	110	-12.7%	31.1	0.1	19.2	4.7	13.9	0.9	2.2	1.9	BDL
11 11 2003	108	BY	6.5	0.69	100	108	-13.3%	33.2	0.1	19.1	4.7	12.0	0.8	2.7	2.3	BDL
11 11 2003	105	BZ	6.4	0.58	626	585	-1.5%	86.2	0.1	147.9	4.9	110.7	1.5	5.6	4.2	13.0
11 11 2003	117	CA	6.2	5.55	473	458	-0.5%	33.0	0.2	129.5	5.4	49.5	1.9	12.8	17.0	BDL
11 11 2003	92	CB	6.2	2.91	283	284	-0.3%	35.2	0.3	66.4	9.3	43.0	1.1	6.1	5.2	BDL
11 11 2003	34	CC	6.4	4.37	81	89	-13.5%	19.3	0.2	16.9	5.1	12.0	0.8	1.1	1.1	BDL
11 11 2003	31	CD	6.1	1.16	376	354	-0.4%	35.8	0.2	89.2	7.3	40.4	1.1	9.4	9.9	12.0
11 11 2003	dry	East Weir	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
11 11 2003	1	Field blank 1	7.5	NM	5	6	19.3%	BDL	0.2	0.9	0.5	1.2	0.0	0.0	0.0	BDL
11 11 2003	86	Field blank 2	7.7	NM	4	5	28.0%	BDL	0.1	1.0	0.2	1.2	0.0	0.1	0.0	BDL
11 11 2003	65	ST	6.1	6.00	405	400	-1.3%	17.1	0.1	108.5	16.9	65.9	2.9	5.2	4.8	BDL
11 11 2003	66	ST	6.1	6.00	405	399	-2.0%	17.5	0.1	109.1	16.6	64.2	2.9	5.5	5.1	BDL
11 11 2003	121	UB101	5.6	10.48	60	57	0.0%	2.8	0.1	10.5	6.1	8.8	0.8	0.7	0.7	BDL
11 11 2003	120	UB102	5.8	10.13	62	63	-1.8%	5.1	0.4	11.6	6.0	9.3	1.0	0.8	0.7	BDL
11 11 2003	10	UB201	5.2	11.34	175	176	1.8%	1.4	0.1	42.7	12.7	32.0	0.6	2.1	0.5	BDL
11 11 2003	11	UB201	5.2	11.34	178	175	1.8%	1.3	0.1	42.5	12.4	30.3	0.7	2.9	0.7	BDL
11 11 2003	12	UB202	5.0	9.65	348	340	0.0%	0.9	0.1	101.6	6.8	60.8	1.2	4.5	1.6	BDL
11 11 2003	7	UB203	5.3	9.81	61	58	5.5%	1.4	0.1	11.9	4.9	9.7	0.7	0.7	0.6	BDL
11 11 2003	8	UB204	5.3	10.24	65	61	6.8%	1.6	0.1	12.6	4.7	9.8	0.7	0.8	0.8	BDL
11 11 2003	9	UB205	5.3	9.88	90	85	6.7%	3.2	0.1	17.9	5.7	12.8	0.8	1.4	1.6	BDL
11 11 2003	118	UC101	6.0	6.80	54	59	-5.6%	7.2	0.2	10.0	6.3	8.4	0.9	0.7	0.7	BDL
11 11 2003	119	UC102	5.8	7.95	64	66	-1.2%	5.8	0.2	10.6	7.7	7.5	2.6	1.4	1.0	BDL
11 11 2003	5	UC201	4.9	12.10	497	474	1.2%	0.7	0.2	145.5	5.4	83.2	1.7	7.6	4.0	BDL
11 11 2003	6	UC202	5.1	9.10	194	192	1.3%	0.9	0.2	51.2	8.5	31.6	1.5	2.5	1.7	BDL
11 11 2003	2	UC203	6.4	8.74	84	87	-2.0%	6.1	0.2	15.9	9.7	14.0	2.2	0.5	0.4	BDL
11 11 2003	3	UC204	5.8	10.37	69	67	4.0%	5.5	0.3	9.1	9.2	9.3	4.0	0.6	0.7	BDL
11 11 2003	4	UC205	5.3	5.83	101	91	13.7%	4.3	0.2	12.5	11.6	10.6	5.4	2.1	2.1	BDL
11 11 2003	13	West Weir	6.0	6.60	235	206	15.4%	23.4	0.2	35.5	11.3	34.6	0.9	11.0	1.7	BDL
12 18 2003	dry	AA	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
12 18 2003	87	AB	6.2	4.93	305	285	7.2%	25.6	0.8	64.3	10.2	37.7	1.4	7.4	9.7	BDL
12 18 2003	84	AC	6.2	6.87	665	636	2.6%	14.3	157.2	128.3	5.5	94.8	0.6	19.8	32.5	BDL
12 18 2003	88	AD	NM	3.04	NM	1593	3.2%	0.0	439.7	352.3	2.9	263.8	2.1	59.2	63.2	BDL
12 18 2003	11	AE	5.9	5.15	1635	1411	3.3%	13.2	52.8	459.1	2.6	272.5	2.7	34.2	18.1	BDL
12 18 2003	14	AF	6.9	2.49	417	306	-0.7%	38.6	12.0	72.5	2.5	44.5	0.8	7.6	6.8	BDL
12 18 2003	16	AG	5.9	1.82	1658	1484	1.8%	9.7	106.2	452.7	2.6	273.6	3.7	31.7	24.8	9.0
12 18 2003	13	AH	6.6	0.60	2425	1998	3.1%	21.5	139.2	657.3	6.4	459.4	2.7	21.5	17.4	4.5
12 18 2003	dry	AI	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
12 18 2003	85	AJ	6.5	3.97	116	114	1.2%	29.5	0.3	16.1	6.4	22.0	0.7	1.2	0.8	BDL
12 18 2003	15	AK	6.6	2.18	219	207	-2.8%	30.0	1.4	44.2	8.9	27.3	0.7	7.4	3.3	BDL
12 18 2003	45	AL	6.4	0.93	793	738	2.3%	29.3	41.5	207.5	4.1	131.5	0.9	16.9	10.7	2.0
12 18 2003	dry	AM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
12 18 2003	89	AN	7.1	3.48	271	160	-2.8%	50.9	0.3	22.1	7.9	33.7	0.5	0.1	0.7	BDL
12 18 2003	91	AN	7.1	3.48	271	188	-2.8%	51.9	0.3	22.2	7.8	32.5	0.5	1.1	0.9	16.0
12 18 2003	78	AO	6.5	2.23	164	163	2.2%	31.6	0.3	24.3	12.4	32.0	0.7	1.2	0.8	2.5
12 18 2003	74	AP	5.9	2.13	249	222	10.8%	21.5	DND	40.5	10.9	47.3	0.9	3.4	2.1	1.6
12 18 2003	65	AQ	6.5	1.37	202	156	5.6%	22.5	0.3	42.4	6.7	38.3	0.7	2.2	1.5	BDL
12 18 2003	67	AR	6.8	5.30	84	77	-4.1%	14.9	0.3	12.9	5.1	11.5	0.9	1.2	1.0	BDL
12 18 2003	21	AS	6.1	0.93	1413	1233	3.4%	19.5	72.0	378.9	4.8	281.7	1.4	8.2	6.2	1.8
12 18 2003	35	AT	5.6	1.90	1005	910	7.7%	17.6	27.2	262.4	10.9	179.1	1.4	18.9	12.2	2.6
12 18 2003	63	AU	7.1	0.78	81	87	-10.2%	20.7	0.4	12.9	7.7	12.5	0.8	1.2	1.0	BDL
12 18 2003	79	AV	6.4	5.37	158	147	5.0%	16.9	0.2	33.2	2.8	27.3	0.8	1.5	1.6	BDL
12 18 2003	80	AV	6.4	5.37	158	148	2.8%	19.6	0.2	33.1	2.7	26.1	0.8	1.7	1.9	BDL
12 18 2003	125	AW	6.4	3.62	45	77	0.0%	12.9	0.2	14.3	4.3	11.4	0.9	1.2	1.1	BDL
12 18 2003	81	AX	6.5	4.56	72	67	-0.7%	9.0	0.3	11.3	3.7	10.2	0.8	0.7	1.0	BDL
12 18 2003	69	AY	6.1	8.35	207	196	12.4%	17.2	0.3	38.4	10.2	37.6	1.5	3.0	2.6	BDL
12 18 2003	70	AY	6.1	8.35	207	196	10.5%	18.7	0.3	38.5	10.3	35.8	1.2	3.4	2.9	BDL
12 18 2003	122	AZ	7.5	3.90	97	142	-2.7%	17.2	0.3	32.3	5.0	20.1	1.7	2.9	2.1	BDL
12 18 2003	123	BA	6.9	9.62	107	163	0.0%	14.0	0.2	41.2	4.4	25.0	1.8	2.8	2.0	BDL
12 18 2003	124	BB	6.7	1.14	53	81	0.0%	16.7	0.2	14.3	5.0	11.9	1.0	0.9	1.0	BDL
12 18 2003	64	BC	6.9	1.20	77	83	-11.0%	19.3	0.3	11.1	9.9	13.2	0.7	0.6	0.6	BDL
12 18 2003	39	BCa	7.1	1.95	185	157	4.2%	34.3	0.4	24.3	7.4	26.6	0.4	3.9	2.0	1.9
12 18 2003	40	BCa	7.1	1.95	185	132	-12.6%	32.8	0.3	23.7	7.2	24.1	0.0	0.1	0.0	1.9
12 18 2003	41	BCb	6.9	1.70	253	242	6.4%	49.2	0.3	37.5	14.1	43.0	0.7	5.0	3.8	2.8
12 18 2003	38	BCc	6.9	0.97	476	334	1.5%	66.1	0.2	77.8	12.1	64.1	1.9	6.9	5.6	10.4
12 18 2003	45	BCd	6.6	0.95	239	215	1.0%	33.1	0.3	39.3	9.3	32.0	1.1	4.5	3.0	9.3
12 18 2003	114	BCe	5.8	3.55	144	131	9.5%	6.8	0.5	29.4	4.5	21.0	0.9	3.5	1.8	BDL
12 18 2003	42	BCf	7.0	1.44	206	192	6.8%	41.4	0.3	28.9	9.4	33.5	0.7	3.5	3.5	3.2
12 18 2003	34	BCg	6.3	1.76	253	257	11.8%	32.8	0.4	47.3	12.4	49.2	0.7	4.0	4.2	2.3
12 18 2003	33	BCh	6.3	1.39	209	186	14.1%	26.1	0.4	32.3	7.1	37.5	0.5	3.2	2.1	1.5
12 18 2003	44	BCi	6.4	0.95	369	355	1.7%	38.2	0.3	74.1	16.3	54.0	1.5	6.7	5.4	15.6
12 18 2003	43	BCj	7.0	6.15	126	127	-6.6%	25.1	0.3	24.8	5.8	17.4	1.1	2.8	2.0	BDL
12 18 2003	61	BD	7.4	1.09	146	121	4.5%	32.0	0.3	16.0	6.8	24.6	0.5	1.3	0.9	BDL
12 18 2003	115	BE	5.9	5.65	114	135	6.6%	6.7	0.3	22.3	5.4	15.3	1.1	2.6	1.9	17.9
12 18 2003	73	BF	6.5	0.73	97	95	-2.4%	15.8	0.2	18.4	4.6	14.6	1.0	1.4	1.3	BDL
12 18 2003	102	BG	6.8	1.21	453	420	1.0%	54.0	0.3	102.0	10.4	71.4	1.6	7.5	6.6	BDL
12 18 2003	103	BH	7.2	1.22	99	73	-14.2%	20.6	0.3	11.4	4.9	10.0	0.7	0.9	0.9	BDL
12 18 2003	104	BI	6.6	3.92	131	131	-0.1%	17.1	0.3	26.0	6.2	19.0	1.2	2.2	2.0	2.3
12 18 2003	32	BJ	6.1	4.01	182	169	8.3%	15.2	0.3	35.6	5.9	32.5	1.1	1.6	1.7	BDL
12 18 2003	68	BK	6.5	1.75	74	76	-7.7%	16.9	0.3	12.4	5.2	11.3	0.9	1.0	0.9	BDL
12 18 2003	59	BL	6.0	5.35	102	118	17.1%	15.1	0.3	18.3	6.8	27.0	0.7	0.7	0.7	BDL

Plymouth Well Sampling Summary

Updated 38519.0 SVK

NM - not measured; NS - not sampled; BDL = below detection limit; DND = did not detect; if listed as 0, below 1, rounded, but above detection limit

Sample Date	Sample ID	Borehole ID	pH	DO (mg/L)	Measured Conductivity (mS/cm)	Calc Conductivity (mS/cm)	Net Charge	HCO_3^- Conc. (mg/L)	Acetate Conc. (mg/L)	Cl^- Conc. (mg/L)	SO_4^{-2} Conc. (mg/L)	Na^+ Conc. (mg/L)	K^+ Conc. (mg/L)	Ca^{+2} Conc. (mg/L)	Mg^{+2} Conc. (mg/L)	Fe^{+2} Conc. (mg/L)
12 18 2003	31	BM	7.2	2.02	136	99	-14.3%	24.0	0.4	12.8	9.1	14.1	0.8	0.6	0.6	BDL
12 18 2003	116	BMa	6.0	0.88	248	2109	2.6%	23.5	147.2	704.4	0.7	427.8	3.0	51.3	33.1	BDL
12 18 2003	37	BMb	6.1	0.86	2087	1759	3.0%	30.2	105.6	579.1	1.6	337.5	2.9	48.5	32.8	16.8
12 18 2003	27	BMc	6.4	0.96	257	220	3.0%	33.3	0.3	45.4	6.6	36.6	0.7	4.0	3.8	BDL
12 18 2003	35	BMd	5.9	2.52	482	458	1.8%	13.4	8.5	127.6	10.8	75.2	2.2	8.4	7.2	BDL
12 18 2003	36	BMe	6.1	7.20	139	187	42.2%	14.9	0.3	22.9	6.1	44.5	1.2	4.8	3.7	4.0
12 18 2003	22	BMf	6.6	7.26	145	113	-12.8%	30.9	0.3	18.0	5.8	15.8	1.1	1.3	1.2	2.6
12 18 2003	23	BMg	5.9	3.10	127	127	-1.4%	19.4	0.2	24.3	6.9	20.3	1.3	1.5	1.6	1.3
12 18 2003	26	BMh	6.2	5.95	108	105	-6.2%	19.4	0.3	18.6	7.5	17.0	1.0	1.0	0.9	BDL
12 18 2003	32	BN	6.2	1.05	232	222	5.4%	26.4	0.3	43.5	12.9	40.9	1.2	2.6	2.6	1.6
12 18 2003	55	BO	6.8	1.15	93	83	-17.6%	35.8	0.2	13.2	4.8	10.4	1.0	1.1	1.2	BDL
12 18 2003	29	BOa	6.1	0.79	1495	1314	1.6%	17.9	110.2	397.3	1.0	252.0	3.8	24.4	16.8	20.8
12 18 2003	30	BOa	6.1	0.34	1495	1316	1.6%	15.7	110.4	397.1	1.0	253.4	3.9	25.1	17.2	18.9
12 18 2003	28	BOb	6.2	0.34	306	274	14.7%	31.0	0.3	43.8	14.3	52.1	1.1	5.3	5.0	4.9
12 18 2003	49	BOc	6.5	0.35	452	453	6.1%	55.1	0.3	59.5	14.0	74.8	1.9	9.3	9.3	9.2
12 18 2003	50	BOc	6.5	0.35	452	454	5.5%	55.3	0.4	59.4	14.0	74.1	1.9	9.3	9.6	9.8
12 18 2003	53	BOd	6.2	10.51	424	399	6.0%	33.2	0.3	88.2	12.6	64.1	1.8	7.2	6.4	11.7
12 18 2003	47	BOe	6.7	0.77	305	264	2.7%	48.9	0.4	45.1	15.4	42.0	1.3	4.6	4.5	8.0
12 18 2003	48	BOf	6.7	1.00	252	239	3.4%	40.4	0.3	39.2	16.9	39.3	1.7	3.6	4.1	4.8
12 18 2003	51	BOg	6.8	0.81	240	221	-1.7%	30.3	0.3	45.3	13.9	36.6	1.6	2.7	2.9	BDL
12 18 2003	52	BOh	6.6	10.52	224	198	-2.7%	23.1	0.2	47.4	5.7	29.5	1.6	3.0	3.3	BDL
12 18 2003	54	BP	6.4	10.48	448	424	2.6%	46.6	0.3	83.2	14.7	67.8	2.1	5.8	5.6	13.9
12 18 2003	17	BQ	6.7	5.62	121	72	-11.6%	18.6	0.3	11.2	5.2	9.9	0.8	0.7	1.1	BDL
12 18 2003	24	BR	5.6	2.65	81	77	3.5%	6.7	0.3	15.5	4.5	11.5	1.0	1.1	1.3	BDL
12 18 2003	72	BS	7.0	3.05	100	72	-7.5%	17.4	0.3	11.2	4.7	9.7	0.9	1.4	1.1	BDL
12 18 2003	94	BTa	6.4	1.14	473	438	9.6%	54.1	0.3	94.5	11.9	72.6	0.9	13.0	9.5	3.2
12 18 2003	95	BTb	6.7	0.62	472	435	6.4%	49.2	0.3	97.4	11.2	65.1	0.9	13.5	9.6	2.9
12 18 2003	96	BTc	6.8	0.45	392	354	5.3%	57.1	0.3	73.0	9.5	55.7	0.8	9.9	7.5	4.1
12 18 2003	97	BTd	6.9	0.39	406	372	4.0%	51.5	0.3	84.9	6.2	56.6	0.9	10.6	7.7	3.8
12 18 2003	98	BTe	7.0	0.39	274	245	3.1%	45.6	0.3	49.7	4.0	37.8	0.7	6.7	4.5	3.4
12 18 2003	99	BTf	7.0	0.69	203	190	2.6%	41.2	0.3	34.1	3.9	28.4	0.6	5.2	3.7	3.4
12 18 2003	100	BTf	7.0	0.69	203	184	2.4%	40.9	0.3	34.1	3.8	27.2	0.6	5.6	3.9	BDL
12 18 2003	93	BTg	6.5	0.71	174	162	7.6%	26.5	0.3	27.3	5.9	21.0	0.5	5.8	4.1	4.6
12 18 2003	77	BTh	6.7	0.74	158	145	5.0%	28.1	0.2	22.7	6.0	18.1	0.6	5.0	3.8	4.6
12 18 2003	92	BTi	NM	1.04	NM	83	15.8%	0.0	0.3	12.7	8.7	15.1	0.8	0.5	0.5	4.6
12 18 2003	76	BTj	6.8	0.76	151	129	-3.3%	27.3	0.2	20.5	7.2	19.4	0.6	1.9	1.8	3.8
12 18 2003	75	BTk	6.3	0.69	475	426	15.0%	66.4	0.4	83.9	9.6	96.3	1.2	6.4	3.6	4.4
12 18 2003	101	BU	7.2	2.98	168	165	4.3%	39.8	0.2	26.7	1.7	33.0	0.3	1.1	1.0	6.4
12 18 2003	65	BX	6.7	0.74	111	106	8.3%	32.7	0.3	19.6	3.7	11.2	1.4	6.6	2.8	1.7
12 18 2003	63	BY	7.4	0.71	93	97	-10.2%	31.6	0.3	14.9	3.8	12.9	0.8	2.1	1.8	BDL
12 18 2003	59	BZ	7.0	0.62	499	433	0.4%	52.7	0.3	98.8	4.3	72.4	1.4	5.0	4.2	13.7
12 18 2003	60	BZ	7.0	0.62	499	410	0.4%	59.5	0.3	98.7	4.2	71.0	1.4	5.2	4.3	13.7
12 18 2003	83	CA	6.1	3.82	219	205	6.5%	18.0	1.9	43.2	9.5	28.0	0.9	4.6	6.3	BDL
12 18 2003	71	CB	6.2	2.25	659	629	5.8%	49.1	14.8	163.2	9.3	114.6	1.5	12.1	11.4	BDL
12 18 2003	85	CC	6.8	3.83	112	83	-12.2%	19.6	0.3	14.7	4.8	10.7	0.8	1.4	1.3	BDL
12 18 2003	91	CD	6.4	0.88	1450	1278	-1.2%	35.9	311.7	310.0	0.8	182.7	2.6	51.7	44.9	BDL
12 18 2003	57	East Weir	6.1	7.35	3341	2694	3.7%	28.5	107.4	954.5	7.7	648.1	3.7	29.1	33.0	BDL
12 18 2003	1	Field blank 1	8.8	NM	6	3	44.6%	BDL	0.3	0.2	0.2	0.8	0.0	0.1	0.0	BDL
12 18 2003	126	Field blank 2	7.3	NM	5	NA	0.0%	BDL	0.2	0.1	0.2	0.8	0.0	BDL	0.0	BDL
12 18 2003	19	ST	6.1	2.67	679	575	3.0%	20.5	20.8	155.4	13.9	102.2	2.9	9.8	8.3	BDL
12 18 2003	20	ST	6.1	2.67	679	579	2.5%	21.8	20.8	155.6	15.0	101.0	2.9	10.2	8.7	1.1
12 18 2003	119	UB101	8.0	9.13	62	60	-7.8%	13.3	0.3	8.5	5.6	8.7	0.8	0.8	0.7	BDL
12 18 2003	120	UB101	8.0	9.13	62	60	-9.9%	13.8	0.3	8.5	5.6	6.8	0.8	1.3	1.2	BDL
12 18 2003	121	UB102	6.9	9.09	60	60	-0.7%	9.3	0.3	9.3	5.4	8.6	0.9	1.0	0.9	BDL
12 18 2003	12	UB201	5.0	8.85	119	113	9.7%	0.6	0.3	23.6	9.2	21.2	0.7	1.7	0.5	BDL
12 18 2003	11	UB202	5.4	9.11	72	72	10.1%	1.5	0.3	11.5	6.9	12.3	0.1	0.9	0.4	4.3
12 18 2003	7	UB203	7.0	9.23	66	64	-11.5%	14.8	0.3	10.3	4.9	8.8	0.8	0.9	0.7	BDL
12 18 2003	8	UB204	6.3	9.12	61	61	0.7%	7.9	0.3	10.3	4.9	9.3	0.8	0.9	0.8	BDL
12 18 2003	9	UB205	5.6	8.12	85	77	14.0%	3.5	0.3	14.0	5.8	12.8	0.8	1.4	1.5	BDL
12 18 2003	10	UB205	5.6	8.12	85	77	11.8%	3.6	0.3	14.3	5.8	11.0	0.8	1.8	1.9	BDL
12 18 2003	117	UC101	7.3	9.20	83	63	-14.3%	16.8	0.3	8.5	6.3	8.1	0.6	0.9	0.9	BDL
12 18 2003	118	UC102	6.8	9.38	63	66	-7.1%	14.5	0.3	8.2	7.4	7.7	2.6	1.3	1.0	BDL
12 18 2003	2	UC201	6.6	8.41	491	452	4.2%	11.1	0.4	131.9	4.3	84.7	2.4	6.7	3.3	BDL
12 18 2003	3	UC202	6.4	8.37	85	159	1.3%	8.3	0.4	37.6	8.4	26.6	1.4	2.1	1.4	BDL
12 18 2003	4	UC203	6.1	8.50	114	107	2.5%	5.6	0.4	17.5	14.4	15.8	3.2	1.4	1.2	BDL
12 18 2003	5	UC204	5.6	7.60	72	65	9.6%	3.8	0.4	7.5	10.2	9.1	4.1	0.5	0.8	BDL
12 18 2003	6	UC205	5.3	5.57	102	90	18.9%	3.5	0.4	11.4	11.5	10.2	5.7	2.4	2.5	BDL
12 18 2003	58	Weir Weir	6.7	8.40	1712	1357	4.3%	51.7	6.5	434.9	8.2	301.2	1.2	15.1	8.7	BDL
1 20 2004	dry	AA	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1 20 2004	dry	AB	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1 20 2004	28	AC	6.4	0.00	137	90	-2.4%	11.2	0.2	19.0	4.8	16.4	0.2	0.3	0.5	BDL
1 20 2004	39	AD	6.1	0.00	813	686	-0.8%	33.9	59.9	184.0	7.2	94.1	1.2	19.3	20.6	BDL
1 20 2004	40	AE	6.6	0.00	560	488	-0.1%	49.9	0.2	122.5	3.8	84.3	0.8	7.1	3.7	1.2
1 20 2004	41	AF	6.6	0.00	269	206	1.3%	21.0	0.7	49.1	3.1	29.1	0.6	4.6	4.2	2.8
1 20 2004	97	AG	7.3	0.00	1260	1031	-2.2%	39.9	243.0	255.3	7.7	190.8	2.5	22.8	25.6	8.5
1 20 2004	100	AH	8.3	0.00	517	439	-1.0%	92.0	34.5	78.5	11.8	85.6	0.9	4.9	5.2	2.4
1 20 2004	105	AI	7.3	0.35	290	138	40.8%	72.6	0.2	15.0	6.3	33.2	0.6	5.6	5.7	BDL
1 20 2004	107	AJ	7.6	0.00	159	138	-5.1%	54.6	BDL	15.3	6.6	27.2	0.7	1.0	0.8	BDL
1 20 2004	81	AK	7.3	0.00	251	207	1.7%	25.4	0.1	44.4	9.2	23.6	1.0	6.3	4.2	BDL
1 20 2004	42	AL	6.0	0.00	3375	2910	2.6%	22.1	175.0	1032.7	5.6	691.9	2.1	39.3	25.1	3.3
1 20 2004	43	AL	6.0	0.00	3375	2916	2.8%	25.6	159.0	1040.3	5.6	691.9	2.1	39.3	25.2	3.4
1 20 2004	dry	AM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1 20 2004	106	AN	7.9	3.55	145	120	-4.4%	44.9	0.2	15.8	3.0	24.6	0.4	0.6	0.4	BDL
1 20 2004	104	AO	7.4	4.50	324	272	-7.6%	10.6	0.2	47.7	10.2	51.8	0.9	1.9	1.2	1.3

Plymouth Well Sampling Summary

Updated 38519.0 SVK

NM = not measured; NS = not sampled; BDL = below detection limit; DND = did not detect; if listed as 0; below 1, rounded, but above detection limit

Sample Date	Sample ID	Borehole ID	pH	DO (mg/L)	Measured Conductivity (mS/cm)	Calc Conductivity (mS/cm)	Net Charge	HCO_3^- Conc. (mg/L)	Acetate Conc. (mg/L)	Cl^- Conc. (mg/L)	SO_4^{-2} Conc. (mg/L)	Na^+ Conc. (mg/L)	K^+ Conc. (mg/L)	Ca^{+2} Conc. (mg/L)	Mg^{+2} Conc. (mg/L)	Fe^{+2} Conc. (mg/L)
1 20 2004	105	AO	7.4	4.50	324	272	-7.9%	80.7	0.2	47.8	10.3	50.3	0.9	2.3	1.4	1.3
1 20 2004	101	AP	7.9	1.57	345	276	-3.2%	73.5	BDL	50.5	7.8	51.0	0.8	3.6	2.4	1.5
1 20 2004	79	AQ	7.6	3.60	179	127	-1.9%	34.6	0.2	17.7	8.3	23.3	0.5	1.6	1.1	BDL
1 20 2004	dry	AR	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1 20 2004	37	AS	6.5	0.00	1377	1114	-0.3%	56.1	44.8	342.8	4.8	219.9	1.3	14.1	13.9	BDL
1 20 2004	23	AT	6.1	0.00	10160	5211	29.5%	37.0	493.5	1455.7	18.2	1519.1	4.8	121.0	85.4	8.8
1 20 2004	78	AU	7.5	1.14	120	89	-9.7%	18.2	2.2	14.3	7.2	13.8	0.7	0.9	0.8	BDL
1 20 2004	34	AV	6.6	0.00	157	109	3.5%	17.9	0.2	20.3	4.3	17.3	0.7	1.7	2.1	BDL
1 20 2004	117	AW	5.9	0.00	85	75	2.2%	5.9	BDL	16.1	3.9	11.4	0.9	1.1	1.0	BDL
1 20 2004	35	AX	5.9	0.00	101	57	-1.0%	5.9	BDL	10.3	6.1	9.4	0.7	0.4	0.7	BDL
1 20 2004	30	AY	6.5	0.00	151	110	4.6%	31.1	0.3	13.3	6.2	22.4	0.8	1.0	0.9	BDL
1 20 2004	119	AZ	5.4	0.00	123	109	3.2%	2.2	0.3	25.9	6.0	16.7	1.4	1.8	1.3	BDL
1 20 2004	113	BA	5.6	0.00	113	95	9.2%	2.3	0.3	20.3	5.8	14.6	1.5	2.0	1.4	BDL
1 20 2004	115	BB	7.9	0.00	75	73	-8.5%	16.4	0.2	12.0	5.2	11.2	1.1	0.6	0.7	BDL
1 20 2004	116	BB	7.9	0.00	75	73	-12.3%	16.0	0.2	12.3	5.8	9.0	1.1	1.1	1.2	BDL
1 20 2004	82	BC	6.6	1.42	104	77	-6.0%	11.2	0.2	11.9	9.4	12.2	0.7	0.6	0.7	BDL
1 20 2004	103	BCa	7.6	0.43	2220	1791	-1.1%	39.6	1.3	640.5	0.3	376.7	3.7	18.7	11.6	11.2
1 20 2004	93	BCb	7.7	0.39	2652	2076	-0.5%	44.6	97.3	690.9	0.3	387.1	2.4	44.2	30.5	21.5
1 20 2004	102	BCc	7.6	0.42	2330	1823	-0.7%	73.7	34.4	618.9	0.2	331.9	3.6	38.6	30.9	24.2
1 20 2004	72	BCd	7.5	0.49	535	451	-3.0%	65.8	1.3	107.9	4.4	69.8	1.6	8.0	6.9	14.0
1 20 2004	71	BCe	6.3	3.77	155	113	4.5%	15.6	0.2	21.4	4.9	20.0	0.7	1.5	1.1	1.2
1 20 2004	70	BCf	7.1	0.54	2416	1896	-2.6%	50.2	42.5	651.9	0.9	317.5	3.5	45.5	36.4	32.8
1 20 2004	67	BCg	7.0	0.43	2844	2230	-2.5%	47.0	137.0	767.9	0.2	344.2	3.2	68.5	61.9	39.4
1 20 2004	75	BCh	7.4	0.42	2035	1614	-1.2%	50.7	22.5	545.1	0.3	243.6	2.4	51.2	37.9	32.7
1 20 2004	76	BCh	7.4	0.42	2035	1604	-0.7%	27.9	32.7	547.8	0.4	237.6	2.4	51.3	38.0	32.7
1 20 2004	69	BCi	7.3	0.49	1123	924	-0.9%	79.3	0.4	270.7	0.5	165.6	1.7	12.8	11.0	10.8
1 20 2004	37	BCj	7.0	2.29	455	372	-1.0%	19.7	0.3	107.0	4.4	64.3	1.3	4.6	3.7	BDL
1 20 2004	63	BD	6.5	0.45	2406	1879	-0.3%	54.8	34.0	648.3	0.6	335.3	2.5	41.5	35.3	23.8
1 20 2004	73	BE	6.7	0.49	1398	1107	-0.5%	27.1	0.2	357.2	21.3	220.7	2.1	10.7	8.0	4.4
1 20 2004	62	BF	6.2	1.45	122	67	0.3%	7.8	0.2	11.2	6.4	11.5	0.7	0.6	0.5	BDL
1 20 2004	60	BG	6.7	0.00	479	390	0.5%	42.9	0.1	95.2	7.3	60.4	1.4	7.5	6.9	6.6
1 20 2004	59	BH	6.5	0.00	95	65	-8.7%	12.9	0.2	11.1	5.0	9.2	0.7	0.8	0.9	BDL
1 20 2004	68	BI	5.7	0.00	183	119	6.7%	5.9	0.1	26.6	5.9	18.3	1.2	2.3	2.1	BDL
1 20 2004	27	BJ	6.3	0.00	242	193	0.6%	23.4	0.9	39.6	10.4	36.4	0.9	1.3	1.5	BDL
1 20 2004	56	BK	6.9	0.65	93	75	3.7%	11.3	0.2	12.7	5.0	13.1	0.8	0.9	0.8	BDL
1 20 2004	23	BL	6.2	0.00	255	202	1.2%	21.8	0.2	49.0	3.4	29.5	0.8	3.9	4.4	BDL
1 20 2004	16	BM	5.3	0.00	82	74	8.6%	3.1	BDL	12.4	8.7	14.2	0.7	0.4	0.5	BDL
1 20 2004	13	BMa	6.1	0.00	169	143	18.0%	19.4	0.8	24.0	3.9	21.6	0.4	2.9	2.1	1.2
1 20 2004	20	BMb	6.9	0.00	169	119	2.4%	35.0	0.1	15.0	4.4	16.2	0.5	3.8	2.8	2.0
1 20 2004	21	BMb	6.9	0.00	169	114	3.4%	32.3	BDL	14.4	4.2	13.9	0.4	4.3	3.2	2.1
1 20 2004	22	BMc	6.4	0.00	135	93	5.6%	20.5	BDL	13.4	3.9	16.2	0.4	1.4	1.3	BDL
1 20 2004	26	BMd	6.2	0.00	135	90	-2.4%	17.5	BDL	15.9	4.7	14.6	0.5	1.1	1.0	BDL
1 20 2004	25	BMe	6.5	0.00	164	123	-10.3%	29.0	0.2	25.4	5.0	18.1	1.2	1.9	1.8	BDL
1 20 2004	18	BMf	7.6	0.00	276	199	-19.1%	56.4	0.3	37.4	7.5	27.0	1.4	1.9	1.8	BDL
1 20 2004	19	BMg	5.6	0.00	155	111	1.5%	6.2	0.9	23.5	8.0	19.1	1.0	0.9	1.0	BDL
1 20 2004	24	BMh	6.0	0.00	610	509	0.2%	9.1	23.4	145.4	6.1	93.5	1.2	6.2	5.0	BDL
1 20 2004	15	BN	6.0	0.00	125	106	8.0%	13.6	BDL	17.7	8.0	20.8	0.6	0.9	0.9	BDL
1 20 2004	94	BO	6.8	0.00	103	74	-1.4%	9.4	0.2	13.9	5.1	11.3	0.9	0.8	1.0	BDL
1 20 2004	33	BOa	6.9	0.00	329	272	1.5%	55.6	0.9	52.1	6.7	44.4	1.0	5.7	4.5	3.9
1 20 2004	57	BOb	6.5	0.00	1363	1106	-2.4%	26.1	76.5	335.9	0.8	159.9	3.0	29.4	27.1	22.1
1 20 2004	87	BOc	7.5	0.00	1956	1542	-3.2%	25.5	134.6	485.3	0.3	247.7	3.8	35.6	31.5	34.2
1 20 2004	88	BOc	7.5	0.00	1966	1545	-3.0%	25.5	134.8	485.4	0.3	248.1	3.8	39.2	32.0	38.1
1 20 2004	45	BOd	6.4	0.00	2390	1856	-5.3%	22.8	229.7	580.8	0.3	338.4	5.0	30.0	27.3	60.1
1 20 2004	39	BOe	6.7	0.00	669	539	-0.7%	61.7	1.7	141.7	1.6	85.2	1.8	8.5	10.1	12.6
1 20 2004	89	BOf	7.5	0.00	1314	964	-1.8%	74.7	12.0	285.0	4.8	146.9	3.9	19.3	22.0	17.9
1 20 2004	85	BOg	7.0	0.00	2059	1657	-4.5%	41.0	148.6	513.8	6.1	268.0	3.7	32.8	35.1	59.3
1 20 2004	55	BOh	6.1	0.00	1634	1301	-2.8%	11.1	165.3	392.1	6.8	216.7	5.6	29.6	28.7	BDL
1 20 2004	44	BP	6.3	0.00	1425	1143	-5.8%	37.9	65.9	347.7	0.5	171.7	4.6	20.1	20.6	51.1
1 20 2004	93	BQ	4.8	0.00	100	72	-16.9%	0.3	0.7	12.7	6.7	13.3	1.0	0.7	1.0	BDL
1 20 2004	99	BQ	4.8	0.00	100	69	14.8%	0.4	0.6	12.3	6.7	10.9	0.9	1.0	1.6	BDL
1 20 2004	95	BR	7.1	0.00	113	86	1.1%	9.0	0.2	17.4	4.8	12.8	1.0	1.2	1.4	BDL
1 20 2004	80	BS	6.9	2.10	94	64	-3.5%	11.9	0.1	10.6	4.8	9.5	0.7	1.1	0.8	BDL
1 20 2004	56	BTa	7.4	0.00	292	221	2.5%	58.7	0.2	31.2	12.1	38.7	0.5	4.6	3.4	1.8
1 20 2004	55	BTb	7.2	0.00	361	303	2.6%	61.7	0.2	55.0	11.7	49.6	0.6	7.7	5.2	2.3
1 20 2004	46	BTc	7.2	0.00	389	310	0.5%	68.8	0.3	54.2	15.1	47.1	0.6	9.0	5.9	3.0
1 20 2004	48	BTd	7.0	0.00	295	245	1.2%	51.8	0.4	39.6	14.9	35.0	0.7	7.4	5.2	3.4
1 20 2004	53	BTe	7.2	0.00	241	186	0.2%	45.5	0.2	29.5	6.8	25.9	0.6	5.6	3.8	4.0
1 20 2004	54	BTe	7.2	0.00	241	184	-0.4%	45.4	0.1	29.4	6.7	24.4	0.6	5.9	4.0	3.9
1 20 2004	50	BTf	7.2	0.00	205	152	0.0%	39.7	0.1	21.4	6.0	17.9	0.5	5.9	3.6	4.6
1 20 2004	51	BTg	6.9	0.00	231	165	2.2%	33.7	0.2	28.4	4.4	19.1	0.5	6.4	4.3	6.7
1 20 2004	49	BTh	6.7	0.00	208	157	-2.3%	32.2	0.2	27.3	5.1	19.0	0.5	4.9	3.1	6.1
1 20 2004	47	BTi	6.6	0.00	121	80	-5.0%	14.7	BDL	15.4	9.1	14.2	0.7	0.4	0.3	BDL
1 20 2004	65	BTj	6.9	0.00	155	141	-2.8%	25.5	0.2	25.0	7.2	22.7	0.8	1.6	1.4	4.0
1 20 2004	52	BTk	7.0	0.00	338	268	2.5%	67.4	0.2	43.8	7.7	48.4	0.7	5.3	2.9	5.9
1 20 2004	64	BU	6.4	0.00	211	141	1.5%	17.8	BDL	31.0	4.1	29.5	0.5	3.0	2.8	BDL
1 20 2004	65	BU	6.4	0.00	211	138	1.5%	15.8	0.2	31.0	4.0	18.9	0.5	3.3	3.1	BDL
1 20 2004	84	BX	7.8	0.61	136	110	0.9%	39.4	0.2	10.9	4.0	11.6	1.3	6.0	2.6	1.8
1 20 2004	61	BY	6.3	0.00	126	79	11.5%	8.8	0.1	14.2	3.8	11.6	0.7	2.2	1.9	BDL
1 20 2004	58	BZ	7.4	0.00	204	154	2.2%	44.9	0.2	22.1	4.1	33.0	0.5	0.6	0.4	2.3
1 20 2004	36	CA	6.4	0.00	348	287	4.2%	31.7	BDL	64.3	11.1	49.2	1.3	6.2	5.5	BDL
1 20 2004	83	CB	7.4	1.21	621	506	-1.4%	62.0	0.2	133.3	8.2	85.5	0.9	8.6	7.3	BDL
1 20 2004	109	CC	NM	NM	NM	73	12.1%	0.0	0.1	15.4	5.0	12.0	0.9	1.1	1.1	BDL
1 20 2004	31	CD	6.7	0.00	654	539	-1.0%	80.1	24.1	123.8	0.4	65.4	1.3	15.3	16.4	16.1
1 20 2004	32	CD	6.7	0.00	654	540	-2.7%	83.6	24.5	135.2	0.5	65.3	1.3	15.4	16.6	15.9
1 20 2004	1	Field blank 1	4.4	NM	38	12	32.6%	BDL	0.2	2.0	0.3	2.5	0.7	0.0	0.0	BDL

Plymouth Well Sampling Summary

Updated 33519.0 SVK

NM = not measured BDL = below detection limit

NS = not sampled DND = did not detect

if listed as 0; below 1, rounded, but above detection limit

Sample Date	Sample ID	Borehole ID	pH	DO (mg/L)	Measured Conductivity (mS/cm)	Calc Conductivity (mS/cm)	Net Charge	HCO_3^- Conc. (mg/L)	Acetate Conc. (mg/L)	Cl^- Conc. (mg/L)	SO_4^{-2} Conc. (mg/L)	Na^+ Conc. (mg/L)	K^+ Conc. (mg/L)	Ca^{+2} Conc. (mg/L)	Mg^{+2} Conc. (mg/L)	Fe^{+2} Conc. (mg/L)
1 20 2004	110	Field blank 2	7.4	NM	0	913	0.5%	27.6	57.3	268.8	4.0	172.4	1.7	14.4	11.3	4.4
1 20 2004	14	ST	5.5	0.00	199	174	8.5%	4.5	BDL	41.4	7.5	25.7	1.3	3.7	3.7	BDL
1 20 2004	113	UB101	4.3	8.49	68	54	6.5%	0.1	0.2	11.1	6.2	8.7	0.8	0.9	0.8	BDL
1 20 2004	114	UB102	6.5	8.75	58	53	-1.7%	7.0	BDL	8.3	5.7	7.8	0.8	0.8	0.7	BDL
1 20 2004	11	UB201	5.0	6.45	208	189	4.1%	0.8	BDL	50.5	6.4	32.6	0.8	3.5	1.1	BDL
1 20 2004	12	UB202	4.9	6.72	68	61	10.5%	0.4	BDL	12.2	5.0	10.4	0.5	1.2	0.5	BDL
1 20 2004	7	UB203	5.2	6.84	56	50	9.4%	1.4	BDL	9.3	4.6	8.6	0.7	0.6	0.5	BDL
1 20 2004	8	UB204	5.2	6.77	60	59	-30.9%	1.3	BDL	9.9	4.4	3.9	0.3	0.3	0.2	BDL
1 20 2004	9	UB205	5.3	6.15	85	71	13.3%	1.9	BDL	13.4	5.8	11.9	0.7	1.1	1.2	BDL
1 20 2004	10	UB205	5.3	6.15	86	72	10.9%	2.0	0.9	13.5	5.9	10.3	0.7	1.6	1.7	BDL
1 20 2004	111	UC101	5.8	3.66	60	60	5.3%	3.6	0.1	10.3	6.3	9.9	0.9	0.6	0.6	BDL
1 20 2004	112	UC102	5.5	7.87	58	53	11.4%	2.0	BDL	7.7	6.8	7.9	2.2	0.8	0.6	BDL
1 20 2004	2	UC201	4.6	6.81	622	518	2.6%	0.3	BDL	159.9	5.9	97.3	1.8	6.8	3.3	BDL
1 20 2004	3	UC202	4.6	6.44	276	240	3.2%	0.3	BDL	70.1	2.2	35.4	2.2	5.0	3.3	BDL
1 20 2004	4	UC203	4.9	6.39	76	68	16.8%	0.7	BDL	7.0	12.9	13.8	2.0	0.2	0.1	BDL
1 20 2004	5	UC204	4.9	6.21	70	60	14.6%	0.9	BDL	6.6	10.6	8.8	3.6	0.6	0.7	BDL
1 20 2004	6	UC205	5.0	4.14	108	85	20.8%	2.0	BDL	10.8	11.0	10.2	5.3	2.1	2.2	BDL
1 20 2004	17	West Weir	7.0	9.93	49480	45934	31.0%	75.8	3543.7	15592.5	69.8	19415.6	25.1	598.4	917.4	BDL
2 24 2004	dry	AA	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2 24 2004	63	AB	6.5	0.97	312	295	-4.5%	24.8	6.5	69.0	18.6	49.7	0.9	1.6	4.1	BDL
2 24 2004	43	AC	6.9	5.17	106	104	-5.5%	19.6	0.3	18.2	7.9	11.2	0.2	0.5	0.9	BDL
2 24 2004	73	AD	6.3	0.43	462	433	0.4%	42.6	0.2	108.5	15.2	73.5	1.3	6.7	6.7	BDL
2 24 2004	frozen	AE	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2 24 2004	24	AF	6.2	0.58	1473	1267	0.2%	36.1	8.9	418.0	2.6	238.2	2.1	17.8	16.4	14.9
2 24 2004	frozen	AG	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2 24 2004	frozen	AH	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2 24 2004	61	AI	6.0	0.00	844	805	-1.2%	9.0	135.9	209.8	3.0	152.8	0.9	9.1	13.6	2.1
2 24 2004	59	AJ	6.8	0.56	434	405	-2.1%	39.4	7.4	109.9	1.8	68.9	1.3	6.0	5.1	BDL
2 24 2004	60	AJ	6.8	0.56	434	409	-4.0%	47.6	7.4	109.9	1.7	67.4	1.5	6.3	5.4	BDL
2 24 2004	21	AK	6.4	NM	988	916	-2.8%	45.9	4.9	274.6	7.7	156.8	1.3	16.9	7.2	33.5
2 24 2004	frozen	AL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2 24 2004	dry	AM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2 24 2004	56	AN	7.4	3.07	158	142	-8.9%	48.3	0.2	22.7	4.0	27.3	0.4	0.4	0.4	BDL
2 24 2004	55	AO	7.3	0.17	366	332	-7.4%	83.8	0.2	68.6	8.2	62.1	0.8	2.3	1.5	4.0
2 24 2004	57	AP	6.7	0.28	494	497	-2.7%	59.9	0.2	132.0	7.0	74.0	0.9	11.4	9.6	2.6
2 24 2004	75	AQ	6.8	5.58	189	148	-0.9%	36.5	0.2	23.0	7.8	27.8	0.5	1.5	1.1	1.1
2 24 2004	dry	AR	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2 24 2004	frozen	AS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2 24 2004	frozen	AT	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2 24 2004	52	AU	4.9	0.00	8093	6316	-2.1%	1.5	439.1	2633.4	25.2	1615.3	8.2	110.2	71.1	BDL
2 24 2004	84	AV	6.7	5.65	260	225	3.0%	15.8	0.2	57.4	3.9	30.0	1.1	5.1	6.1	BDL
2 24 2004	85	AW	6.0	1.02	83	80	1.5%	5.9	0.4	18.1	3.4	11.8	0.9	1.3	1.2	BDL
2 24 2004	25	AX	7.2	6.72	70	71	-12.4%	18.5	0.2	10.8	5.7	10.5	0.9	0.5	0.8	BDL
2 24 2004	26	AY	6.7	6.59	104	106	1.1%	18.6	0.2	20.4	3.6	18.1	0.6	1.4	1.4	BDL
2 24 2004	87	AZ	6.5	7.35	137	133	-1.1%	9.3	0.3	32.2	5.2	20.8	1.4	2.0	1.3	BDL
2 24 2004	86	BA	7.6	6.05	92	94	-3.0%	17.5	0.2	16.6	5.7	13.4	1.3	2.0	1.4	BDL
2 24 2004	89	BB	5.8	5.65	74	70	4.7%	3.0	0.1	14.4	5.4	11.7	0.8	9.6	0.8	BDL
2 24 2004	90	BB	5.8	5.68	74	71	-0.3%	5.6	0.2	14.4	5.4	9.9	0.8	1.0	1.3	BDL
2 24 2004	42	BC	6.8	0.45	270	263	-1.9%	35.5	10.7	47.8	21.5	55.1	0.2	0.2	0.1	BDL
2 24 2004	47	BCa	6.3	0.02	2786	2393	1.5%	48.7	63.6	847.4	0.1	558.5	2.2	22.8	14.4	14.4
2 24 2004	45	BCb	6.0	0.00	2351	1971	3.8%	48.0	4.4	682.8	0.3	434.1	2.7	25.8	17.8	14.9
2 24 2004	53	BCc	5.9	0.00	1823	1577	3.8%	32.1	3.1	530.7	0.2	307.6	2.6	31.6	21.6	16.0
2 24 2004	54	BCd	6.0	0.00	5120	4100	1.5%	43.3	184.1	1571.9	0.1	1001.6	5.0	55.9	35.6	35.8
2 24 2004	49	BCe	6.1	0.47	5750	4553	0.3%	49.1	260.2	1826.9	0.5	1131.3	4.5	68.3	51.4	40.5
2 24 2004	50	BCe	6.1	0.00	5750	4558	0.3%	47.9	251.8	1829.7	0.4	1136.0	4.7	69.9	51.8	40.7
2 24 2004	32	BCf	6.3	0.00	2020	1764	0.0%	44.3	5.1	620.4	0.2	356.5	2.0	15.0	8.6	10.9
2 24 2004	45	BCg	6.5	0.00	3300	2759	2.0%	101.9	39.9	1010.7	0.2	647.9	3.0	35.4	25.7	15.6
2 24 2004	55	BCh	6.3	0.00	2946	2516	2.5%	77.9	7.5	906.2	0.2	589.6	2.5	24.2	17.7	14.7
2 24 2004	37	BCi	6.4	0.05	5020	4145	0.2%	69.9	233.1	1577.9	0.3	973.5	4.5	67.3	48.9	44.1
2 24 2004	38	BCj	6.0	0.09	900	835	1.6%	20.5	7.7	262.9	2.0	129.3	2.9	21.3	17.3	3.0
2 24 2004	41	BD	6.0	0.00	2639	2280	3.3%	49.0	0.5	816.6	0.3	539.2	2.2	17.5	13.2	11.4
2 24 2004	35	BE	6.0	0.09	7390	6189	0.2%	38.8	373.4	2549.3	0.5	1560.8	7.1	105.3	71.3	71.5
2 24 2004	44	BF	5.7	0.00	5040	4145	0.8%	32.8	333.2	1555.6	14.0	1018.3	2.5	34.9	22.4	BDL
2 24 2004	68	BG	6.7	0.57	356	360	1.0%	40.0	0.2	85.0	9.7	54.1	1.1	7.4	7.0	7.1
2 24 2004	34	BH	6.6	1.55	64	71	-12.9%	17.5	0.4	11.7	4.9	9.8	0.7	0.9	1.0	BDL
2 24 2004	51	BI	7.2	3.99	162	134	-6.1%	29.8	0.3	24.7	6.2	19.6	1.2	2.3	2.0	BDL
2 24 2004	27	BJ	6.4	5.19	143	147	-0.1%	29.0	0.4	26.8	6.7	24.8	0.7	1.9	2.2	BDL
2 24 2004	83	BK	7.4	0.75	103	81	-17.7%	24.9	0.3	13.3	4.4	11.3	0.7	0.9	0.7	BDL
2 24 2004	77	BL	6.8	6.00	185	169	3.0%	19.5	0.2	32.4	12.4	31.2	0.6	1.5	1.7	BDL
2 24 2004	frozen	BM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2 24 2004	frozen	BMa	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2 24 2004	frozen	BMb	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2 24 2004	frozen	BMc	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2 24 2004	81	BMd	6.2	0.82	2649	2238	0.7%	25.7	176.1	773.7	7.4	503.2	1.3	30.0	23.4	5.2
2 24 2004	frozen	BMe	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2 24 2004	21	BMf	5.5	9.10	452	452	1.7%	5.9	30.3	122.8	6.7	84.4	1.1	6.0	4.4	BDL
2 24 2004	frozen	BMg	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2 24 2004	frozen	BMh	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2 24 2004	frozen	BN	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2 24 2004	frozen	BO	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2 24 2004	frozen	BOa	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2 24 2004	frozen	BOb	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2 24 2004	frozen	BOc	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2 24 2004	frozen	BOd	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Plymouth Well Sampling Summary

Updated 33519.0 SVK

NM = not measured
NS = not sampled
BDL = below detection limit
DND = did not detect
if listed as 0: below 1, rounded, but above detection limit

Sample Date	Sample ID	Borehole ID	pH	DO (mg/L)	Measured Conductivity (mS/cm)	Calc Conductivity (mS/cm)	Net Charge	HCO_3^- Conc. (mg/L)	Acetate Conc. (mg/L)	Cl^- Conc. (mg/L)	SO_4^{-2} Conc. (mg/L)	Na^+ Conc. (mg/L)	K^+ Conc. (mg/L)	Ca^{+2} Conc. (mg/L)	Mg^{+2} Conc. (mg/L)	Fe^{+2} Conc. (mg/L)
2/24/2004	frozen	BOe	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2/24/2004	frozen	BOf	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2/24/2004	frozen	BOg	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2/24/2004	frozen	BOh	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2/24/2004	frozen	BP	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2/24/2004	69	BQ	7.2	3.16	87	64	-7.2%	12.1	0.4	10.0	6.2	10.1	0.7	0.4	0.7	BDL
2/24/2004	70	BQ	7.2	3.16	87	62	-7.1%	10.2	0.4	10.0	6.2	8.0	0.7	0.7	1.3	BDL
2/24/2004	frozen	BR	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2/24/2004	18	BS	5.4	3.27	61	55	11.3%	3.1	0.1	10.2	4.9	9.3	0.7	1.2	0.9	BDL
2/24/2004	76	BTa	6.3	1.10	471	424	3.7%	15.3	0.3	122.2	4.8	60.6	0.6	12.9	9.7	4.6
2/24/2004	79	BTb	6.1	0.77	2207	1966	2.3%	34.2	0.2	666.9	0.9	297.5	2.7	71.8	44.8	26.9
2/24/2004	80	BTb	6.1	0.77	2207	1901	2.5%	36.8	0.3	651.8	0.8	295.6	2.7	72.2	45.1	27.6
2/24/2004	31	BTc	6.0	0.37	1872	1671	2.8%	35.3	0.2	565.3	1.5	302.7	3.6	48.3	22.9	27.8
2/24/2004	66	BTd	6.2	0.54	2614	2323	0.3%	34.4	0.3	798.2	1.2	404.1	3.6	60.7	30.9	54.7
2/24/2004	65	BTe	6.0	0.44	1090	958	6.1%	31.4	0.2	290.3	1.6	194.9	1.9	10.3	8.4	15.4
2/24/2004	71	BTf	6.4	0.40	619	554	2.4%	41.2	0.3	150.3	8.5	103.5	1.2	8.0	5.0	13.2
2/24/2004	28	BTg	6.1	0.35	597	559	5.2%	41.9	0.3	146.9	2.6	107.2	1.0	7.6	4.4	16.6
2/24/2004	29	BTh	6.3	0.57	180	182	3.1%	30.2	0.4	34.5	4.3	30.6	0.4	3.4	1.8	5.8
2/24/2004	30	BTh	6.3	0.57	180	177	4.2%	27.1	0.2	34.0	4.2	28.6	0.5	4.0	2.0	5.8
2/24/2004	67	BTi	7.5	5.09	108	85	-17.4%	24.5	0.4	14.1	5.9	13.5	0.7	0.3	0.4	BDL
2/24/2004	64	BTj	6.8	2.16	124	105	-5.3%	21.4	0.2	15.4	7.9	18.2	0.9	0.7	0.6	1.9
2/24/2004	39	BTk	6.3	0.80	315	296	8.2%	45.3	0.3	57.5	7.4	57.1	0.7	5.3	2.7	6.4
2/24/2004	43	BTk	6.3	0.80	315	297	7.0%	46.3	0.6	58.4	7.4	55.4	0.7	5.7	2.9	6.4
2/24/2004	32	BU	6.8	0.77	98	97	-1.8%	23.4	0.1	12.1	9.3	15.6	0.6	1.5	1.5	BDL
2/24/2004	45	BX	6.9	0.00	136	113	1.5%	35.3	0.6	12.1	3.8	12.1	1.2	6.3	2.7	1.8
2/24/2004	33	BY	6.7	1.77	76	84	-9.6%	25.1	0.2	12.1	4.8	11.0	0.6	1.8	1.6	BDL
2/24/2004	35	BZ	6.3	2.01	184	179	4.4%	26.1	0.2	32.4	5.2	24.9	0.7	3.8	3.6	9.6
2/24/2004	78	CA	6.5	2.96	412	386	2.8%	32.7	0.1	99.7	7.5	45.5	1.3	10.2	13.9	BDL
2/24/2004	74	CB	6.5	2.09	361	335	-0.2%	45.0	0.3	81.4	6.6	45.5	1.0	8.2	8.6	BDL
2/24/2004	72	CC	7.0	2.80	114	91	-13.3%	21.4	0.2	17.0	4.9	12.6	0.8	1.1	1.1	BDL
2/24/2004	62	CD	6.1	0.66	715	643	3.0%	51.4	6.7	171.7	1.1	91.3	1.4	15.3	17.1	20.1
2/24/2004	17	East Weir	4.9	6.63	852	761	8.5%	3.5	26.8	220.9	4.6	155.0	3.4	7.0	5.8	BDL
2/24/2004	1	Field blank 1	7.7	NM	7	4	35.2%	BDL	0.2	0.5	0.2	0.9	0.0	0.1	0.0	BDL
2/24/2004	85	Field blank 2	8.1	NM	15	3	53.2%	BDL	0.1	0.2	0.2	0.8	0.0	0.0	0.0	BDL
2/24/2004	19	ST	5.6	0.54	1723	1527	3.5%	14.9	100.4	474.2	10.2	337.3	2.0	15.6	15.7	7.8
2/24/2004	20	ST	5.6	6.57	1723	1526	2.5%	15.4	101.6	477.6	10.3	331.9	2.0	16.2	15.8	7.7
2/24/2004	5	UB101	7.1	6.60	53	63	-13.6%	12.5	0.3	10.6	5.7	8.7	0.8	0.7	0.6	BDL
2/24/2004	4	UB102	7.8	6.70	50	61	-14.8%	14.4	0.2	9.4	5.6	8.4	0.7	0.6	0.6	BDL
2/24/2004	12	UB201	6.6	6.70	324	321	1.5%	9.7	0.5	91.6	4.3	53.5	1.2	7.0	2.8	BDL
2/24/2004	13	UB202	6.6	6.79	87	77	-0.1%	7.4	0.6	15.0	5.4	11.9	0.6	1.5	0.7	BDL
2/24/2004	14	UB203	6.6	6.88	87	52	9.3%	BDL	0.5	10.1	4.9	8.5	0.7	0.7	0.6	BDL
2/24/2004	15	UB204	6.6	6.89	58	60	-4.7%	7.1	0.2	10.8	5.7	8.9	0.7	0.7	0.7	BDL
2/24/2004	16	UB205	5.2	5.35	97	87	11.7%	1.7	0.3	18.6	5.0	13.2	0.8	1.7	1.9	BDL
2/24/2004	2	UC101	7.0	6.95	58	67	-10.0%	11.7	0.2	11.2	6.6	9.7	0.8	0.6	0.7	BDL
2/24/2004	3	UC102	7.0	6.77	54	63	-13.7%	15.2	0.4	8.5	6.7	7.1	2.3	1.0	0.8	BDL
2/24/2004	6	UC201	6.7	6.33	559	539	1.3%	8.1	0.1	164.8	7.2	100.9	1.8	6.9	3.4	BDL
2/24/2004	7	UC202	6.1	6.24	418	411	1.5%	7.0	0.4	124.1	2.1	64.8	3.1	8.5	5.6	BDL
2/24/2004	8	UC203	6.2	6.12	112	116	-0.4%	7.3	0.4	23.7	9.9	18.2	2.9	1.1	0.9	BDL
2/24/2004	9	UC204	6.0	6.12	64	64	5.0%	4.3	0.3	7.1	11.1	9.4	3.5	0.4	0.5	BDL
2/24/2004	10	UC204	6.0	6.12	64	64	0.6%	6.0	0.2	7.2	11.1	7.5	3.6	0.9	1.0	BDL
2/24/2004	11	UC205	4.9	4.53	852	85	16.1%	1.6	0.4	11.3	12.3	10.1	5.0	2.0	2.1	BDL
2/24/2004	22	West Weir	6.2	2.83	3115	1907	1.8%	47.8	88.5	634.9	5.3	436.7	3.5	16.3	14.1	1.1
3/30/2004	dry	AA	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
3/30/2004	58	AB	7.4	5.98	184	163	5.4%	BDL	0.2	36.3	14.6	25.0	0.6	1.2	3.4	BDL
3/30/2004	52	AC	7.1	5.04	247	226	8.4%	BDL	0.1	61.3	4.7	32.2	0.4	4.1	6.7	BDL
3/30/2004	54	AD	6.7	2.45	381	372	12.8%	24.4	0.1	84.2	13.9	54.3	1.4	9.9	13.1	BDL
3/30/2004	55	AD	6.7	2.45	381	373	12.7%	25.7	0.1	84.0	13.9	55.7	1.4	9.7	12.6	BDL
3/30/2004	frozen	AE	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
3/30/2004	59	AF	6.8	0.35	1732	1487	-0.1%	48.0	7.9	499.8	2.9	283.6	2.2	20.8	19.7	20.4
3/30/2004	56	AG	6.7	0.82	2182	1841	1.8%	85.5	68.8	595.7	6.3	429.1	1.4	11.4	11.6	9.3
3/30/2004	33	AH	5.9	0.48	1526	1379	5.3%	31.8	17.4	407.1	1.3	272.4	2.0	13.8	13.5	8.5
3/30/2004	70	AI	6.7	2.70	367	331	1.9%	15.4	11.1	80.7	7.2	59.2	0.3	2.3	4.0	8.5
3/30/2004	69	AJ	6.9	3.95	247	220	4.2%	11.7	0.2	58.6	2.1	37.7	1.0	3.4	2.7	BDL
3/30/2004	40	AK	7.0	1.48	335	315	2.1%	10.0	0.3	84.5	8.1	49.3	0.7	7.8	3.5	3.8
3/30/2004	frozen	AL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
3/30/2004	dry	AM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
3/30/2004	68	AN	7.3	3.43	143	120	7.0%	18.7	0.2	21.4	5.3	25.0	0.4	0.7	0.7	BDL
3/30/2004	65	AO	6.9	2.41	308	289	1.3%	35.6	1.6	65.5	7.5	35.5	0.8	2.5	1.8	2.7
3/30/2004	66	AO	6.9	2.41	308	274	4.5%	35.1	0.2	60.2	7.4	54.0	0.8	2.8	2.0	2.6
3/30/2004	49	AP	6.3	3.16	775	719	3.7%	16.9	0.2	218.8	7.1	120.7	1.2	14.7	13.4	2.7
3/30/2004	48	AQ	6.5	7.12	533	499	3.6%	7.3	0.2	150.7	4.0	65.2	1.4	17.9	11.8	BDL
3/30/2004	55	AR	7.4	3.76	223	196	2.6%	10.3	0.2	49.9	5.3	24.9	1.1	6.1	4.4	BDL
3/30/2004	35	AS	6.2	0.87	1539	1354	2.9%	40.1	38.8	432.6	2.4	282.8	1.9	15.8	15.0	5.9
3/30/2004	17	AT	6.3	0.65	619	555	6.7%	46.4	9.6	139.4	6.5	96.8	0.6	11.7	10.9	6.1
3/30/2004	113	AU	6.8	2.55	378	370	0.4%	7.4	36.7	230.2	12.1	160.8	1.3	4.9	3.4	BDL
3/30/2004	41	AV	7.0	5.70	201	177	7.2%	10.6	0.2	35.6	13.8	33.6	0.7	1.7	3.8	BDL
3/30/2004	74	AW	6.8	1.23	91	73	9.3%	BDL	0.1	17.1	3.4	11.2	0.9	1.3	1.2	BDL
3/30/2004	42	AX	7.2	5.95	73	59	12.5%	BDL	0.2	11.5	5.2	9.9	0.8	0.6	1.0	BDL
3/30/2004	43	AX	7.2	5.96	73	59	11.6%	BDL	0.1	11.4	5.3	8.5	0.8	0.8	1.4	BDL
3/30/2004	45	AY	6.8	6.62	101	84	15.5%	8.8	0.1	13.7	5.0	13.3	0.6	2.2	1.9	BDL
3/30/2004	72	AZ	8.6	10.46	154	134	-4.8%	BDL	0.2	34.3	5.6	32.1	1.4	2.0	1.2	BDL
3/30/2004	75	BA	6.5	NM	100	76	10.5%	BDL	0.3	15.8	5.6	10.7	1.2	2.0	1.3	BDL
3/30/2004	76	BB	6.4	NM	95	79	9.2%	BDL	0.2	17.9	4.7	13.4	0.9	0.8	1.0	BDL
3/30/2004	77	BB	6.4	NM	95	78	8.0%	BDL	0.1	17.8	4.6	11.3	0.9	1.2	1.5	BDL

Plymouth Well Sampling Summary

Updated 38519.0 SVK

NM = not measured BDL = below detection limit

NS = not sampled DND = did not detect

if listed as 0; below 1, rounded, but above detection limit

Sample Date	Sample ID	Borehole ID	pH	DO (mg/L)	Measured Conductivity (uS/cm)	Calc Conductivity (uS/cm)	Net Charge	HCO_3^- Conc. (mg/L)	Acetate Conc. (mg/L)	Cl^- Conc. (mg/L)	SO_4^{-2} Conc. (mg/L)	Na^+ Conc. (mg/L)	K^+ Conc. (mg/L)	Ca^{+2} Conc. (mg/L)	Mg^{+2} Conc. (mg/L)	Fe^{+2} Conc. (mg/L)
3 30 2004	73	BC	6.9	2.65	83	63	13.6%	BDL	0.3	12.0	6.0	13.0	0.3	0.4	0.3	BDL
3 30 2004	62	BCa	6.5	5.48	4294	3376	1.0%	60.9	208.8	1229.4	0.3	845.6	1.7	28.5	21.4	13.8
3 30 2004	93	BCb	6.7	4.37	4747	3672	0.9%	135.8	180.3	1349.4	0.3	944.2	2.6	27.7	19.8	11.2
3 30 2004	33	BCc	6.5	4.05	5460	4174	1.3%	120.1	148.5	1600.4	0.3	1056.5	2.2	44.7	33.1	17.0
3 30 2004	91	BCd	6.6	3.80	3899	3121	0.9%	101.8	95.5	1144.1	0.2	718.0	2.6	43.5	33.2	13.8
3 30 2004	97	BCe	6.7	3.62	4559	3615	0.6%	95.6	164.9	1345.5	0.3	878.0	2.4	49.6	31.6	20.5
3 30 2004	98	BCe	6.7	3.62	4559	3611	0.7%	65.9	166.1	1355.6	0.3	874.2	2.4	49.8	31.6	20.6
3 30 2004	67	BCf	6.4	5.16	1744	1601	0.1%	54.3	95.9	535.9	0.3	381.6	1.9	11.8	5.6	9.5
3 30 2004	51	BCg	6.3	4.21	3295	2690	1.5%	98.1	179.2	912.6	0.3	654.8	2.6	13.5	9.6	9.3
3 30 2004	57	BCh	6.4	4.20	3576	2958	1.9%	97.5	39.4	1066.6	0.3	741.7	2.8	21.5	13.0	17.1
3 30 2004	92	BCi	6.6	3.76	3476	2725	1.9%	77.4	92.9	1000.1	0.2	655.9	2.6	37.0	22.7	12.2
3 30 2004	102	BCj	6.7	3.54	1857	1633	1.3%	129.8	48.7	513.2	1.5	384.4	1.0	9.0	6.9	4.3
3 30 2004	104	BD	6.8	3.65	1979	1651	1.9%	119.2	14.5	535.9	0.4	389.3	1.3	10.0	6.6	5.9
3 30 2004	103	BE	6.8	3.30	1418	1311	1.9%	103.2	28.5	359.3	3.7	283.0	0.7	5.0	3.7	2.0
3 30 2004	112	BF	7.4	2.57	110	93	5.5%	26.2	0.5	12.8	2.7	21.9	0.2	0.1	0.0	BDL
3 30 2004	87	BG	6.9	0.62	339	317	-0.2%	49.8	0.2	67.5	11.0	47.2	1.1	6.6	6.4	4.6
3 30 2004	88	BG	6.9	0.62	339	306	2.8%	35.7	0.2	67.7	11.0	45.1	1.1	6.9	6.6	4.6
3 30 2004	109	BH	7.5	1.24	83	63	1.1%	7.3	0.2	11.5	4.7	9.9	0.7	0.8	0.8	BDL
3 30 2004	110	BH	7.5	1.24	83	61	1.3%	5.6	0.3	11.5	4.6	7.8	0.8	1.2	1.3	BDL
3 30 2004	90	BI	6.6	3.30	201	172	-0.5%	21.0	0.2	39.2	5.1	24.6	1.6	3.5	3.1	BDL
3 30 2004	64	BJ	7.1	3.72	345	325	8.1%	5.2	0.2	91.2	2.1	49.6	1.4	6.9	7.9	BDL
3 30 2004	44	BK	6.9	0.61	76	63	11.5%	BDL	0.3	13.5	4.2	10.6	0.8	0.9	0.8	BDL
3 30 2004	63	BL	7.4	5.80	359	331	4.1%	12.5	0.2	58.5	6.6	41.5	0.8	2.7	2.5	BDL
3 30 2004	24	BM	7.4	1.65	85	69	11.0%	BDL	0.2	14.0	5.9	12.5	0.7	0.6	0.7	BDL
3 30 2004	23	BMa	6.2	0.74	4970	3850	3.5%	BDL	343.0	1392.9	0.8	938.3	2.7	55.4	65.9	8.3
3 30 2004	29	BMb	6.0	0.65	1721	1456	3.7%	35.4	112.1	449.8	1.4	290.3	2.2	26.5	25.1	7.2
3 30 2004	25	BMc	6.3	0.63	811	727	1.7%	14.4	63.8	195.3	3.1	121.9	1.4	18.4	11.8	17.6
3 30 2004	26	BMd	6.5	2.64	239	273	7.3%	25.3	4.8	47.4	2.1	34.4	0.4	5.8	4.6	5.0
3 30 2004	27	BMe	6.4	3.45	147	130	10.7%	10.7	1.2	27.1	4.2	21.2	0.5	3.2	2.5	BDL
3 30 2004	20	BMf	5.9	6.88	102	89	12.8%	BDL	0.1	17.3	3.3	16.8	0.8	0.9	0.7	BDL
3 30 2004	21	BMf	5.9	6.88	102	88	11.5%	BDL	0.1	17.4	8.3	15.2	0.8	1.4	1.1	BDL
3 30 2004	19	BMg	6.3	5.88	91	78	10.4%	BDL	0.1	16.2	6.3	13.9	0.8	0.8	0.8	BDL
3 30 2004	18	BMh	6.6	6.44	83	83	-8.1%	13.4	0.3	16.6	4.9	12.5	0.8	0.8	0.9	BDL
3 30 2004	28	BN	6.2	0.70	1033	889	4.3%	37.8	85.3	237.4	1.8	190.8	0.5	9.8	9.2	3.5
3 30 2004	71	BO	7.0	1.52	81	64	13.2%	BDL	0.1	13.0	4.8	11.0	0.8	0.7	0.9	BDL
3 30 2004	39	BOa	6.4	0.87	3352	2695	0.8%	39.5	159.3	941.9	1.6	595.9	4.9	40.4	29.0	34.9
3 30 2004	81	BOb	6.5	0.70	2297	1913	-0.1%	52.3	118.6	627.2	0.2	385.1	3.3	31.9	24.8	25.3
3 30 2004	109	BOc	6.8	0.47	1832	1530	0.9%	56.8	100.0	477.4	0.2	341.8	2.7	12.7	9.7	9.2
3 30 2004	34	BOd	6.2	0.85	319	1152	2.6%	24.0	62.9	356.3	0.3	258.4	2.0	6.3	4.7	5.4
3 30 2004	83	BOe	6.4	0.92	2058	1733	0.6%	43.0	114.4	558.0	0.3	379.7	3.0	16.9	14.2	16.6
3 30 2004	82	BOf	6.7	0.39	1345	1174	0.8%	62.8	53.9	356.9	0.2	260.1	1.5	7.6	5.7	4.4
3 30 2004	38	BOg	7.0	0.88	1366	1145	1.5%	81.3	24.4	345.7	0.6	258.3	1.6	5.2	4.4	6.2
3 30 2004	79	BOh	6.1	0.88	1572	1331	3.0%	53.0	8.3	422.1	5.1	289.5	1.7	9.2	8.4	20.3
3 30 2004	94	BP	7.0	0.91	1583	1359	0.3%	65.5	52.2	415.8	0.2	282.6	2.9	14.7	11.9	12.6
3 30 2004	30	BQ	6.9	5.23	61	51	12.5%	BDL	0.1	9.0	5.9	9.0	0.6	0.4	0.7	BDL
3 30 2004	37	BR	6.8	2.37	77	65	11.3%	BDL	0.2	13.5	4.7	10.8	0.5	0.8	1.0	BDL
3 30 2004	101	BS	7.8	2.07	97	65	-10.7%	16.2	0.3	11.5	4.5	8.8	0.7	1.2	1.0	BDL
3 30 2004	84	BTa	7.5	0.67	278	253	3.8%	70.8	0.2	31.2	17.2	43.8	0.5	5.9	4.7	2.3
3 30 2004	85	BTb	7.3	0.40	357	325	2.7%	52.2	0.2	69.9	5.4	61.8	0.6	4.4	3.0	2.6
3 30 2004	106	BTc	6.7	0.49	1424	1232	1.5%	91.2	0.2	382.0	0.5	237.8	2.2	21.9	14.3	13.9
3 30 2004	61	BTd	6.4	0.43	2381	1952	1.6%	23.2	0.2	694.4	0.4	400.6	3.2	31.1	19.1	34.9
3 30 2004	47	BTe	6.1	0.42	1478	1285	2.6%	13.6	0.2	426.6	0.7	258.6	2.3	16.1	10.0	24.5
3 30 2004	108	BTf	6.8	0.51	1139	994	2.0%	61.0	0.2	305.1	0.4	212.3	1.7	7.2	4.6	10.5
3 30 2004	105	BTg	7.1	0.40	532	473	0.3%	35.4	0.2	129.3	4.1	92.1	1.0	3.1	1.9	9.2
3 30 2004	69	BTh	6.9	0.44	822	722	0.0%	BDL	0.2	226.4	4.2	117.6	1.4	12.3	8.6	22.7
3 30 2004	50	BTi	6.2	0.86	529	505	1.3%	BDL	0.2	160.8	1.6	73.0	3.1	10.5	11.1	0.2
3 30 2004	86	BTj	7.0	1.85	372	329	0.7%	BDL	0.1	99.1	1.8	46.7	3.4	6.4	5.3	3.7
3 30 2004	45	BTk	6.6	1.15	214	155	10.7%	29.0	0.2	33.7	6.4	36.1	0.5	3.9	1.9	6.4
3 30 2004	111	BU	7.3	3.83	135	107	0.7%	24.4	0.2	15.8	6.8	15.1	0.7	2.5	2.5	BDL
3 30 2004	78	BX	6.6	2.45	117	98	15.1%	22.0	0.4	11.4	3.7	11.3	1.3	6.1	2.6	1.9
3 30 2004	87	BY	7.3	1.01	99	80	-7.1%	19.6	0.3	12.7	4.7	10.6	0.6	1.6	1.4	BDL
3 30 2004	107	BZ	7.2	0.48	301	268	-1.9%	35.5	0.2	57.0	7.0	34.8	1.0	5.4	5.4	13.3
3 30 2004	56	CA	6.6	1.90	434	405	5.5%	23.5	0.2	106.1	8.2	55.7	1.4	9.5	12.6	BDL
3 30 2004	59	CB	6.4	0.56	3899	3202	2.1%	106.4	256.5	1099.1	13.0	679.7	2.2	69.9	71.5	5.1
3 30 2004	31	CC	6.4	4.32	83	73	11.1%	BDL	0.2	15.7	4.7	12.0	0.7	1.0	1.1	BDL
3 30 2004	32	CC	6.4	4.32	83	71	9.2%	BDL	0.1	15.7	4.7	10.1	0.7	1.4	1.5	BDL
3 30 2004	53	CD	6.5	0.87	789	724	4.7%	39.8	6.6	195.8	3.0	118.9	1.5	13.2	13.4	16.5
3 30 2004	1	Field blank 1	9.0	NM	8	7	35.8%	BDL	0.3	1.0	0.2	1.8	0.0	0.0	0.0	BDL
3 30 2004	128	Field blank 2	NM	NM	NM	NA	NA	BDL	0.1	0.3	0.1	0.2	0.0	0.0	BDL	NS
3 30 2004	35	ST	6.7	1.33	241	217	6.1%	10.7	0.2	51.6	5.7	35.3	0.6	3.3	3.2	6.0
3 30 2004	15	UB101	7.6	8.45	53	50	11.1%	BDL	0.2	9.1	5.3	8.7	0.7	0.5	0.5	BDL
3 30 2004	16	UB102	7.2	8.16	53	49	9.1%	BDL	0.1	9.3	5.1	8.1	0.8	0.6	0.5	BDL
3 30 2004	9	UB201	6.2	8.16	353	331	-1.1%	BDL	0.1	100.9	5.7	61.5	1.1	BDL	2.4	BDL
3 30 2004	10	UB201	6.2	8.16	353	340	2.5%	BDL	0.1	100.3	5.6	60.2	1.1	5.4	2.5	BDL
3 30 2004	12	UB202	6.0	8.05	96	87	6.6%	BDL	0.1	20.7	4.5	13.7	0.7	1.8	0.9	BDL
3 30 2004	7	UB203	7.7	7.98	55	70	-19.2%	BDL	9.8	16.3	4.4	8.7	0.8	0.8	0.6	BDL
3 30 2004	8	UB204	7.2	7.64	57	52	14.2%	BDL	0.2	10.1	4.1	8.8	0.7	0.7	0.7	BDL
3 30 2004	11	UB205	6.3	5.11	109	96	14.1%	BDL	0.1	21.4	4.7	13.7	0.9	2.2	2.5	BDL
3 30 2004	13	UC101	7.7	8.25	57	51	10.2%	BDL	0.1	9.0	6.1	8.5	0.8	0.6	0.6	BDL
3 30 2004	14	UC102	7.0	7.93	53	45	15.6%	BDL	0.1	6.6	6.4	6.9	2.1	0.5	0.6	BDL
3 30 2004	3	UC201	6.8	7.73	705	616	2.3%	BDL	0.2	193.4	6.9	117.9	2.3	7.6	3.7	BDL
3 30 2004	2	UC202	6.4	7.62	6	454	2.5%	BDL	0.3	143.2	2.5	73.6	3.6	8.6	6.0	BDL
3 30 2004	4	UC203	6.7	7.18	116	103	8.1%	BDL	0.1	22.0	8.3	16.2	2.9	1.3	1.2	0.0
3 30 2004	6	UC204	6.4	7.11	65	59	17.5%	BDL	0.1	6.1	11.0	9.4	3.6	0.6	0.5	BDL
3 30 2004	5	UC205	6.4	8.60	101	85	6.8%	10.8	0.1	10.1	11.8	9.9	4.9	1.9	2.0	BDL

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Plymouth Well Sampling Summary.

Updated 35519.0 SVK

NM = not measured
NS = not sampled
BDL = below detection limit.
DND = did not detect
if listed as 0; below 1, rounded, but above detection limit

Sample Date	Sample ID	Borehole ID	pH	DO (mg/L)	Measured Conductivity (mS/cm)	Calc Conductivity (mS/cm)	Net Charge	HCO_3^- Conc. (mg/L)	Acetate Conc. (mg/L)	Cl^- Conc. (mg/L)	SO_4^{-2} Conc. (mg/L)	Na^+ Conc. (mg/L)	K^+ Conc. (mg/L)	Ca^{+2} Conc. (mg/L)	Mg^{+2} Conc. (mg/L)	Fe^{+2} Conc. (mg/L)
5/25/2004	25	BH	6.4	3.65	69	72	-9.4%	13.7	0.3	12.7	5.1	9.5	0.9	1.0	1.1	BDL
5/25/2004	38	BI	6.1	1.70	137	NA	NA	11.3	NS	NS	NS	21.1	1.3	2.1	1.8	NS
5/25/2004	109	BJ	6.6	1.02	470	435	1.7%	15.6	0.5	125.8	2.0	74.4	1.7	5.6	6.3	BDL
5/25/2004	33	BK	5.7	0.46	73	70	5.5%	4.1	0.3	13.9	4.7	10.9	0.9	1.0	0.9	BDL
5/25/2004	104	BL	7.2	5.12	193	165	3.2%	25.2	0.2	37.5	1.0	21.9	0.8	4.9	4.5	BDL
5/25/2004	26	BM	5.6	0.78	76	73	5.7%	4.7	0.3	14.1	5.7	13.3	0.7	0.6	0.6	BDL
5/25/2004	20	BMa	6.0	0.36	1935	1650	-0.7%	66.3	62.5	536.1	0.3	317.6	3.9	28.0	20.8	55.2
5/25/2004	21	BMb	6.1	0.38	1640	1451	-1.6%	61.3	32.5	467.6	0.4	262.0	3.9	23.9	19.5	39.7
5/25/2004	22	BMb	6.1	0.38	1649	1458	-2.1%	62.4	34.4	479.3	0.6	260.0	3.8	24.1	19.6	40.0
5/25/2004	23	BMc	6.3	1.01	252	242	-3.2%	23.4	3.6	69.6	3.4	33.5	1.3	5.5	3.9	3.2
5/25/2004	105	BMd	6.3	0.00	1242	1148	0.2%	31.5	0.3	382.4	3.2	197.8	5.7	21.5	17.6	1.1
5/25/2004	106	BMe	6.3	0.41	338	298	3.4%	13.8	0.4	77.9	8.0	54.8	1.5	3.2	2.4	1.3
5/25/2004	24	BMf	6.0	0.28	125	118	3.7%	9.9	0.2	25.1	6.1	19.9	1.1	1.6	1.3	BDL
5/25/2004	25	BMg	5.3	4.33	241	245	1.1%	4.6	22.4	57.3	5.5	42.5	1.4	2.9	2.5	4.1
5/25/2004	18	BMh	5.7	1.96	169	254	-3.0%	9.6	22.5	60.2	5.7	41.7	1.4	3.1	2.6	4.7
5/25/2004	61	BN	6.7	0.29	255	260	2.3%	45.0	0.5	54.8	2.0	25.8	0.5	10.1	9.7	5.7
5/25/2004	62	BO	7.0	1.70	81	71	0.3%	BDL	0.2	13.4	4.8	11.1	0.9	0.8	0.9	BDL
5/25/2004	31	BOa	6.5	0.32	1518	1344	1.6%	48.3	28.9	435.6	0.2	288.0	2.2	12.7	9.7	6.1
5/25/2004	84	BOb	6.9	0.32	1098	984	2.7%	107.3	1.0	283.5	0.1	215.3	1.6	7.7	6.3	2.5
5/25/2004	85	BOc	7.0	0.03	706	618	3.7%	104.2	0.7	161.7	0.5	145.3	1.1	3.8	2.9	2.0
5/25/2004	86	BOd	7.5	0.28	268	248	5.0%	85.1	0.4	31.8	5.9	59.8	0.5	0.7	0.5	BDL
5/25/2004	87	BOe	7.5	0.58	262	237	1.8%	81.2	0.4	33.5	4.3	54.7	0.4	0.6	0.5	BDL
5/25/2004	88	BOe	7.5	0.53	262	242	3.9%	83.6	0.4	33.9	4.4	56.5	0.4	0.8	0.7	BDL
5/25/2004	89	BOf	7.4	0.60	252	231	2.7%	80.8	0.1	29.8	6.6	53.6	0.4	0.8	0.7	BDL
5/25/2004	90	BOg	7.6	0.63	219	204	4.2%	73.2	0.4	25.7	5.1	48.0	0.4	0.6	0.4	BDL
5/25/2004	92	BOh	6.4	0.63	876	833	-1.3%	45.3	0.3	359.4	5.1	141.0	4.2	15.5	11.5	1.2
5/25/2004	63	BP	6.5	0.41	554	471	6.6%	84.1	0.5	243.6	0.2	191.0	1.8	7.9	6.9	3.3
5/25/2004	35	BQ	6.2	4.90	75	73	0.3%	BDL	0.7	14.5	6.1	10.6	1.1	0.7	1.1	BDL
5/25/2004	36	BQ	6.2	4.50	75	71	0.2%	BDL	0.7	14.1	6.1	9.8	0.9	0.9	1.3	BDL
5/25/2004	39	BR	5.9	1.62	72	68	-0.7%	5.8	0.4	13.5	5.1	9.6	0.9	0.9	1.1	BDL
5/25/2004	30	BS	6.1	1.57	64	61	4.4%	BDL	0.3	11.1	5.0	8.8	0.8	1.2	0.9	BDL
5/25/2004	43	BTa	6.3	1.25	1617	1388	3.3%	70.1	0.2	445.1	0.6	270.9	2.1	25.2	19.3	11.8
5/25/2004	94	BTb	6.6	1.11	1673	1445	2.3%	81.1	0.2	470.0	0.1	325.7	2.2	8.9	7.4	7.4
5/25/2004	44	BTc	6.4	1.34	2317	1945	2.5%	74.8	0.4	670.4	0.2	454.9	2.9	10.8	9.3	14.2
5/25/2004	45	BTd	6.5	1.09	1800	1562	2.5%	87.7	0.4	511.7	0.3	356.3	2.3	6.1	4.8	9.1
5/25/2004	46	BTe	6.6	1.00	2199	1865	1.7%	127.4	0.3	620.5	0.2	450.7	2.3	5.6	4.2	11.2
5/25/2004	47	BTf	6.7	1.13	2133	1848	2.3%	142.1	0.8	604.0	0.3	450.7	1.9	5.8	4.5	10.2
5/25/2004	48	BTf	6.7	1.13	2139	1841	1.5%	144.6	0.9	602.6	0.3	445.6	1.9	5.7	4.5	10.2
5/25/2004	49	BTg	6.7	0.75	2939	2453	0.6%	165.7	27.8	848.3	0.3	596.4	2.6	11.2	11.0	23.2
5/25/2004	50	BTh	6.7	0.61	3156	2575	0.1%	125.5	194.3	890.0	0.3	643.1	3.9	19.0	19.1	30.2
5/25/2004	51	BTi	6.6	0.65	3098	2614	-4.2%	119.9	245.0	855.1	0.4	557.2	2.3	26.5	27.3	82.1
5/25/2004	52	BTj	6.6	0.47	3107	2598	-3.8%	91.4	231.3	875.5	0.2	571.6	3.0	28.1	15.9	57.0
5/25/2004	53	BTk	7.2	0.55	457	432	-1.9%	72.4	5.9	97.6	6.5	75.7	1.2	7.6	3.8	9.1
5/25/2004	34	BU	5.7	1.13	825	757	4.6%	17.3	0.3	220.3	22.2	161.3	1.2	6.0	3.6	BDL
5/25/2004	54	BX	7.6	0.35	117	105	0.7%	36.5	0.3	12.4	3.8	10.6	1.3	6.6	2.7	BDL
5/25/2004	29	BY	5.4	0.95	1942	1645	-1.6%	10.9	1.6	590.1	13.4	325.1	3.6	17.8	18.0	1.3
5/25/2004	37	BZ	5.8	1.11	617	557	3.4%	10.1	0.4	164.7	2.9	97.7	1.7	6.8	7.2	11.5
5/25/2004	55	CA	6.7	1.91	416	402	-1.2%	47.5	0.3	101.9	8.9	56.2	1.0	5.7	10.3	BDL
5/25/2004	56	CB	6.4	0.54	810	744	2.8%	55.7	0.3	212.1	8.1	129.3	1.6	13.9	13.6	2.9
5/25/2004	57	CC	7.1	4.08	93	91	-7.4%	16.3	0.3	17.8	4.7	12.5	0.9	1.4	1.4	BDL
5/25/2004	58	CD	6.4	9.38	583	513	1.2%	72.9	1.9	122.6	5.1	83.9	1.3	9.0	9.5	12.9
5/25/2004	dry	East Weir	NM	NM	NM	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
5/25/2004	1	Field blank 1	7.7	NM	15	13	72.2%	BDL	0.2	3.1	0.3	2.4	2.0	0.0	0.0	BDL
5/25/2004	59	ST	6.6	0.65	287	272	-0.3%	27.5	0.3	63.6	11.7	37.4	1.3	6.2	6.2	BDL
5/25/2004	60	ST	6.6	3.57	287	273	0.4%	27.5	0.2	63.5	11.7	37.1	1.3	6.5	6.5	BDL
5/25/2004	4	UB101	7.9	5.57	69	66	-2.1%	BDL	0.3	11.4	6.5	9.6	1.8	0.6	0.7	BDL
5/25/2004	5	UB102	7.5	3.32	55	58	-11.1%	BDL	0.5	10.1	5.9	7.3	0.7	0.9	0.7	BDL
5/25/2004	6	UB201	5.5	7.47	752	694	1.5%	1.4	0.4	222.2	5.7	129.7	2.6	10.0	5.0	BDL
5/25/2004	7	UB202	5.8	6.03	506	471	1.5%	BDL	0.3	145.5	2.5	81.8	2.8	6.8	4.7	BDL
5/25/2004	8	UB203	6.7	6.37	58	58	-1.6%	9.8	0.2	20.1	5.9	11.2	4.0	1.8	1.5	BDL
5/25/2004	9	UB204	7.0	5.86	216	210	-1.3%	10.2	0.6	53.1	7.8	17.7	7.7	6.1	6.4	BDL
5/25/2004	10	UB205	6.7	5.35	93	58	-8.6%	23.9	0.6	10.0	12.9	9.8	4.9	1.9	1.9	BDL
5/25/2004	11	UB205	6.7	5.26	93	56	-10.3%	23.3	0.3	10.1	12.9	8.0	4.9	2.1	2.3	BDL
5/25/2004	2	UC101	7.6	5.19	77	74	-15.0%	10.0	0.5	14.2	6.7	8.2	2.9	0.7	0.7	BDL
5/25/2004	3	UC102	7.1	5.26	55	53	-7.7%	9.4	0.2	7.2	6.9	6.3	2.2	0.9	0.7	BDL
5/25/2004	12	UC201	6.5	6.92	323	307	0.5%	BDL	0.5	85.8	9.6	56.6	0.9	3.3	1.4	BDL
5/25/2004	13	UC202	6.7	3.47	78	76	-1.1%	BDL	0.4	13.9	7.4	12.3	0.6	1.0	0.6	BDL
5/25/2004	14	UC203	6.4	4.73	57	55	3.5%	BDL	0.4	9.9	4.9	8.0	0.8	0.9	0.8	BDL
5/25/2004	15	UC204	6.0	4.48	63	60	3.4%	BDL	0.6	12.0	4.5	8.7	0.8	1.0	0.9	BDL
5/25/2004	16	UC205	5.5	3.55	124	NA	NA	2.9	NS	NS	NS	14.3	1.0	2.6	2.9	NS
5/25/2004	42	West Weir	6.2	1.37	1723	1023	0.5%	67.0	0.5	317.3	4.4	192.9	2.1	21.3	10.1	BDL
6/22/2004	94	AA	6.7	8.35	165	NA	NA	NS	0.6	29.9	14.6	13.4	2.1	2.5	3.4	BDL
6/22/2004	95	AB	6.6	3.09	147	NA	NA	NS	0.5	25.3	12.8	17.0	0.9	2.1	3.7	BDL
6/22/2004	53	AC	6.3	8.44	353	NA	NA	NS	0.4	79.0	8.4	56.4	1.1	3.9	4.4	BDL
6/22/2004	97	AD	6.3	1.77	505	424	11.7%	BDL	0.7	113.2	8.6	76.5	1.5	7.2	7.4	3.6
6/22/2004	38	AE	6.5	0.61	329	296	4.2%	50.7	0.4	62.0	7.2	67.2	0.5	BDL	0.5	BDL
6/22/2004	35	AF	6.1	0.65	552	493	6.4%	40.7	0.4	129.4	4.7	110.3	0.5	1.7	1.5	1.8
6/22/2004	13	AG	7.0	0.64	341	322	-2.4%	64.2	0.4	65.2	9.4	49.0	0.6	5.9	6.2	6.3
6/22/2004	37	AH	6.1	0.63	711	627	2.4%	56.1	0.4	171.8	0.2	94.8	1.8	14.8	14.1	12.6
6/22/2004	106	AI	6.3	0.50	242	175	14.4%	13.3	1.9	29.2	12.0	31.9	0.5	2.2	3.1	4.9
6/22/2004	93	AJ	6.3	3.19	639	NA	NA	NS	0.5	167.5	7.8	110.2	1.9	4.8	3.7	6.4
6/22/2004	34	AK	5.9	0.69	431	447	0.6%	17.3	0.4	125.9	8.6	76.2	1.3	7.3	4.3	5.8
6/22/2004	17	AL	6.2	0.45	706	635	3.4%	43.9	0.3	182.4	4.2	139.1	0.8	2.5	1.6	1.6
6/22/2004	dry	AM	NM	NM	NM	NA	NA	NS	NS	NS	NS	NS	NS	NS	NS	NS

Plymouth Well Sampling Summary

Updated 35519.0 SVK

NM = not measured BDL = below detection limit
NS = not sampled DND = did not detect
if listed as 0: below 1, rounded, but above detection limit

Sample Date	Sample ID	Borehole ID	pH	DO (mg/L)	Measured Conductivity (mS/cm)	Calc Conductivity (mS/cm)	Net Charge	HCO_3^- Conc. (mg/L)	Acetate Conc. (mg/L)	Cl^- Conc. (mg/L)	SO_4^{-2} Conc. (mg/L)	Na^+ Conc. (mg/L)	K^+ Conc. (mg/L)	Ca^{+2} Conc. (mg/L)	Mg^{+2} Conc. (mg/L)	Fe^{+2} Conc. (mg/L)
6 22 2004	91	AN	6.3	4.39	757	NA	NA	NS	0.4	211.8	4.0	104.8	1.7	15.8	14.6	BDL
6 22 2004	dry	AO	NM	NM	NM	NA	NA	NS	NS	NS	NS	NS	NS	NS	NS	NS
6 22 2004	102	AP	6.2	1.02	1047	911	5.5%	16.2	0.5	214.3	5.9	202.0	1.4	5.6	3.7	2.1
6 22 2004	77	AQ	6.8	2.59	237	246	11.9%	47.1	0.5	43.1	5.0	58.1	0.9	1.6	1.0	BDL
6 22 2004	79	AR	6.2	0.70	902	803	0.9%	38.1	0.7	243.6	10.1	128.2	2.6	13.6	18.7	2.3
6 22 2004	80	AR	6.2	0.70	902	806	0.4%	43.8	0.5	243.3	10.0	127.1	2.6	13.9	19.1	2.3
6 22 2004	26	AS	6.5	0.55	578	522	2.8%	85.9	0.4	126.4	0.6	95.9	1.4	8.7	7.8	3.9
6 22 2004	46	AT	6.1	0.89	1254	1085	2.6%	72.8	0.5	327.1	7.2	202.9	2.1	17.3	17.0	10.9
6 22 2004	54	AU	7.0	0.05	93	90	-17.4%	31.0	0.2	14.0	4.2	13.2	0.5	1.1	0.7	BDL
6 22 2004	32	AV	6.3	10.47	154	144	3.0%	12.5	0.5	32.5	5.7	28.6	0.8	0.6	0.4	BDL
6 22 2004	109	AW	7.8	2.39	92	91	-11.4%	18.6	0.3	18.8	3.0	11.5	1.0	1.6	1.4	BDL
6 22 2004	110	AW	7.8	2.39	92	89	-13.2%	18.0	0.3	18.8	3.1	10.2	1.0	1.7	1.6	BDL
6 22 2004	33	AX	6.4	9.25	124	115	0.5%	BDL	0.5	12.5	25.6	22.1	0.6	0.2	0.2	BDL
6 22 2004	43	AY	5.9	0.26	1054	934	3.3%	25.8	0.7	294.8	3.6	151.0	2.1	23.0	20.3	2.8
6 22 2004	112	AZ	7.1	11.09	100	97	-7.0%	14.3	0.3	19.5	6.2	14.7	1.3	1.2	0.8	BDL
6 22 2004	113	BA	6.8	8.84	92	91	-10.7%	15.3	0.4	16.4	8.0	11.3	1.1	2.0	1.2	BDL
6 22 2004	111	BB	7.4	4.60	119	122	-10.9%	21.6	0.3	27.5	3.5	16.4	1.2	1.6	1.8	BDL
6 22 2004	44	BC	6.7	0.81	76	74	-7.2%	13.3	0.3	12.7	6.2	11.7	0.6	0.8	0.6	BDL
6 22 2004	85	BCa	6.4	0.23	939	826	4.0%	65.9	0.7	240.0	0.9	186.8	0.7	3.3	2.9	1.6
6 22 2004	73	BCb	6.6	0.24	1217	1066	2.8%	72.0	0.5	329.1	0.2	241.2	0.8	4.8	4.1	2.1
6 22 2004	72	BCc	6.9	0.16	802	725	0.8%	92.7	0.4	194.6	0.2	88.6	0.8	22.4	27.4	6.2
6 22 2004	65	BCd	6.7	0.07	1008	904	1.6%	93.7	0.8	261.5	0.2	121.8	0.8	27.4	30.1	7.0
6 22 2004	86	BCe	6.6	0.21	1081	952	0.1%	56.6	0.3	294.7	1.0	135.5	0.9	28.2	29.2	12.7
6 22 2004	51	BCf	6.4	0.06	1075	935	1.9%	74.1	0.3	279.6	0.9	189.5	0.8	9.8	8.8	6.2
6 22 2004	49	BCg	6.5	0.13	1355	1150	4.2%	140.7	0.4	327.4	0.2	277.8	0.9	3.6	3.2	1.6
6 22 2004	50	BCg	6.5	0.13	1355	1150	4.1%	141.0	0.4	327.6	0.2	277.3	0.9	3.7	3.4	1.6
6 22 2004	48	BCh	6.3	0.08	883	751	6.0%	74.0	0.4	206.6	0.2	175.7	0.6	2.5	2.1	1.8
6 22 2004	59	BCi	6.5	0.08	701	621	3.2%	67.1	0.6	165.4	0.8	72.3	0.7	20.8	24.3	5.9
6 22 2004	60	BCi	6.5	0.05	701	622	3.5%	70.2	0.4	165.2	0.7	71.8	0.8	21.3	24.9	6.0
6 22 2004	58	BCj	6.9	0.03	211	194	2.1%	45.7	0.4	34.6	3.1	24.7	0.3	5.4	6.5	1.6
6 22 2004	82	BD	6.4	0.06	553	482	9.6%	85.4	0.3	105.5	0.2	119.4	0.4	1.2	0.9	1.1
6 22 2004	45	BE	6.2	0.07	545	438	6.6%	39.1	0.7	128.7	2.3	51.4	0.5	16.0	27.9	3.2
6 22 2004	78	BF	7.1	2.27	114	89	-9.3%	29.3	0.4	13.1	3.3	11.6	0.1	2.3	1.8	BDL
6 22 2004	101	BG	6.3	0.45	676	590	2.5%	47.6	0.4	159.7	8.7	92.0	1.8	13.1	13.0	6.4
6 22 2004	103	BH	6.3	2.81	80	66	3.0%	4.9	BDL	13.1	4.5	10.0	0.7	0.9	1.0	BDL
6 22 2004	99	BI	5.9	5.42	210	174	4.9%	1.5	BDL	45.6	3.9	24.8	1.6	3.9	3.2	BDL
6 22 2004	100	BI	5.9	5.42	210	180	-1.6%	12.0	0.4	45.8	3.9	23.5	1.7	4.1	3.4	BDL
6 22 2004	42	BJ	5.9	1.07	613	558	2.8%	11.3	0.4	171.7	6.4	101.1	1.9	7.8	7.6	BDL
6 22 2004	81	BK	6.8	0.28	86	78	-15.6%	20.5	0.6	13.4	4.5	10.7	0.8	0.9	0.8	BDL
6 22 2004	35	BL	6.3	9.81	142	126	5.3%	17.3	0.3	26.3	2.2	15.3	0.7	4.2	3.7	BDL
6 22 2004	61	BM	7.0	1.26	79	78	-15.0%	19.4	0.7	13.0	5.4	12.2	0.6	0.4	0.4	BDL
6 22 2004	56	BMa	6.3	0.43	1724	1504	3.0%	137.3	11.9	454.3	0.2	329.0	3.0	14.9	12.5	22.3
6 22 2004	55	BMb	6.1	0.41	1521	1297	1.2%	76.6	5.6	404.7	0.9	250.2	4.7	15.9	15.9	29.7
6 22 2004	41	BMc	6.2	3.10	162	149	0.3%	19.7	0.7	28.1	6.7	23.0	0.7	2.2	1.8	5.7
6 22 2004	53	BMd	6.4	0.36	770	733	-0.7%	98.4	0.5	179.1	21.3	141.8	1.6	6.9	5.7	11.6
6 22 2004	57	BMe	6.9	0.35	320	218	-4.7%	52.5	0.6	34.7	13.7	40.1	0.5	1.5	1.3	4.2
6 22 2004	16	BMf	6.8	7.69	92	95	-11.6%	21.4	0.4	16.6	6.4	14.7	0.8	0.9	0.7	BDL
6 22 2004	39	BMg	6.5	7.99	107	103	-6.7%	15.6	0.5	21.9	4.4	15.8	0.8	1.1	1.0	BDL
6 22 2004	40	BMg	6.5	7.99	107	102	-5.7%	13.6	0.5	22.2	4.4	14.3	0.9	1.4	1.4	BDL
6 22 2004	47	BMh	6.7	6.65	108	105	-8.9%	15.7	0.3	23.5	3.5	14.5	1.0	1.4	1.5	BDL
6 22 2004	52	BN	6.2	0.30	2231	1927	-3.1%	98.4	56.7	633.2	0.3	361.3	3.8	32.1	23.5	62.7
6 22 2004	31	BO	6.6	3.49	70	74	-11.6%	17.3	0.3	12.6	4.7	10.0	0.8	1.1	1.0	BDL
6 22 2004	23	BOa	6.6	0.39	778	799	19.8%	97.1	0.5	180.6	0.2	213.2	1.6	6.1	4.6	2.9
6 22 2004	22	BOb	6.6	0.20	645	578	2.0%	76.9	0.5	151.8	0.2	123.7	1.1	3.3	2.5	2.5
6 22 2004	25	BOc	6.6	0.32	790	701	1.5%	75.0	1.5	193.5	0.3	139.2	1.4	7.6	6.2	4.8
6 22 2004	24	BOd	7.1	0.29	188	177	1.8%	57.9	0.3	23.4	5.5	37.0	0.6	1.5	1.2	1.2
6 22 2004	19	BOe	6.3	0.17	1403	1183	-0.3%	101.1	35.8	348.3	0.2	199.6	2.1	27.4	23.5	18.3
6 22 2004	20	BOe	6.3	0.17	1403	1197	1.3%	100.9	35.7	348.7	0.2	204.8	2.2	28.8	24.8	17.3
6 22 2004	21	BOf	6.3	0.18	1562	1342	0.7%	84.2	10.1	424.4	0.5	210.9	2.1	35.3	32.7	30.4
6 22 2004	18	BOg	6.3	0.39	655	607	4.8%	79.0	0.8	148.5	6.3	107.0	1.2	11.9	11.1	9.1
6 22 2004	15	BOh	6.8	0.34	155	143	4.9%	33.6	0.4	20.8	7.5	32.6	0.2	0.2	0.1	0.6
6 22 2004	28	BP	6.5	0.33	422	371	8.1%	81.1	0.3	70.0	4.2	80.1	1.0	4.0	3.5	2.8
6 22 2004	29	BQ	7.0	8.75	59	61	-10.5%	12.7	0.4	9.3	5.7	8.5	0.7	0.6	0.8	BDL
6 22 2004	30	BQ	7.0	8.75	59	61	-13.4%	11.8	0.4	9.8	5.9	7.1	0.7	0.8	1.2	BDL
6 22 2004	14	BR	7.2	4.34	68	75	-18.3%	21.4	0.3	12.5	4.7	9.8	0.8	0.8	0.8	BDL
6 22 2004	84	BS	7.1	4.30	75	69	-17.0%	20.1	0.3	10.9	4.4	8.8	0.7	1.1	0.8	BDL
6 22 2004	62	BTa	6.4	0.32	1440	1190	3.7%	86.3	0.4	353.5	0.4	254.3	2.1	13.2	9.9	8.2
6 22 2004	75	BTb	6.5	0.29	1695	1496	11.6%	115.2	0.5	433.4	0.2	371.5	2.3	13.6	11.1	13.8
6 22 2004	67	BTc	6.4	0.32	1952	1589	2.8%	118.0	0.4	506.7	0.2	369.4	2.5	8.0	7.9	12.1
6 22 2004	65	BTd	6.5	0.23	1542	1270	2.5%	140.0	0.5	374.8	0.2	301.3	1.8	3.9	3.5	6.6
6 22 2004	69	BTe	6.6	0.08	1321	1109	3.1%	151.5	1.1	308.3	0.2	265.7	1.5	2.6	2.2	6.1
6 22 2004	70	BTe	6.6	0.08	1321	1109	3.1%	151.3	1.1	308.3	0.2	265.7	1.5	2.7	2.3	6.2
6 22 2004	64	BTf	6.6	0.05	1072	931	2.2%	134.7	2.9	240.9	0.3	211.1	0.9	2.1	1.9	4.6
6 22 2004	68	BTg	6.5	0.07	1748	1441	2.0%	119.2	48.5	431.9	0.2	335.6	2.1	6.4	7.2	11.3
6 22 2004	63	BTh	6.5	0.07	1183	1005	2.5%	121.5	37.2	267.8	0.3	217.0	1.7	8.9	9.4	7.9
6 22 2004	74	BTi	7.4	0.07	177	165	-1.1%	52.2	2.4	25.3	1.8	35.3	0.3	0.5	0.5	1.8
6 22 2004	71	BTj	6.4	0.06	2605	2114	2.1%	109.6	137.9	659.8	0.2	493.6	1.9	18.2	16.5	18.0
6 22 2004	87	BTk	6.7	0.11	427	374	5.6%	12.6	0.5	99.8	4.8	67.4	1.1	6.2	2.8	9.0
6 22 2004	104	BU	6.7	6.18	118	91	13.5%	12.1	0.1	18.3	0.5	19.2	0.3	1.1	0.7	BDL
6 22 2004	76	BX	7.3	0.05	122	109	-1.5%	33.3	0.5	12.1	3.5	10.9	1.3	6.1	2.6	1.7
6 22 2004	107	BY	6.4	0.42	443	387	7.7%	13.8	0.4	98.8	14.6	84.6	0.8	1.2	1.3	BDL
6 22 2004	105	BZ	6.0	0.45	1471	1233	3.6%	7.8	0.5	409.6	1.2	234.6	2.8	15.5	16.9	15.7
6 22 2004	95	CA	6.2	3.45	627	NA	NA	NS	0.4	161.7	7.1	79.2	2.2	12.2	15.7	BDL
6 22 2004	83	CB	6.2	0.23	1135	1008	2.4%	52.6	0.3	309.1	10.0	184.2	2.2	17.4	18.3	2.5
6 22 2004	88	CC	7.1	5.75	102	84	0.5%	BDL	0.6	17.9	4.1	12.5	1.0	1.2	1.3	BDL

Plymouth Well Sampling Summary

Updated 35519.0 SVK

NM = not measured
NS = not sampled
BDL = below detection limit
DND = did not detect
if listed as 0: below 1, rounded, but above detection limit

Sample Date	Sample ID	Borehole ID	pH	DO (mg/L)	Measured Conductivity (mS/cm)	Calc Conductivity (mS/cm)	Net Charge	HCO_3^- Conc. (mg/L)	Acetate Conc. (mg/L)	Cl^- Conc. (mg/L)	SO_4^{-2} Conc. (mg/L)	Na^+ Conc. (mg/L)	K^+ Conc. (mg/L)	Ca^{+2} Conc. (mg/L)	Mg^{+2} Conc. (mg/L)	Fe^{+2} Conc. (mg/L)
6 22 2004	92	CD	6.5	0.43	443	NA	NA	NS	19.8	87.3	9.9	65.1	1.1	7.6	8.4	8.1
6 22 2004	103	East Weir	6.7	NM	450	335	7.2%	106.1	0.6	65.6	1.1	61.8	4.4	16.6	8.0	2.3
6 22 2004	1	Field blank 1	3.8	NM	22	4	33.2%	BDL	0.4	0.4	0.2	0.7	0.0	0.0	0.0	BDL
6 22 2004	114	Field blank 2	7.3	NM	4	2	43.5%	BDL	0.3	0.2	0.2	0.7	0.0	0.0	0.0	BDL
6 22 2004	27	ST	6.9	6.22	165	100	-2.1%	17.5	0.3	35.6	6.5	21.3	1.0	3.6	3.3	BDL
6 22 2004	NS	UB101	NM	NM	NM	NA	NA	NS	NS	NS	NS	NS	NS	NS	NS	NS
6 22 2004	NS	UB102	NM	NM	NM	NA	NA	NS	NS	NS	NS	NS	NS	NS	NS	NS
6 22 2004	12	UB201	6.0	11.02	726	694	-0.1%	3.6	0.3	224.9	5.0	127.1	1.8	11.4	4.4	BDL
6 22 2004	11	UB202	6.6	10.19	165	154	-1.0%	7.3	0.4	41.2	4.5	24.3	0.9	2.4	1.4	BDL
6 22 2004	7	UB203	8.2	10.47	55	57	-12.6%	BDL	0.7	9.8	5.2	7.4	0.7	0.8	0.6	BDL
6 22 2004	8	UB204	7.5	10.19	60	59	-3.8%	9.9	0.4	10.7	4.3	7.7	0.7	1.0	0.8	BDL
6 22 2004	9	UB205	6.9	6.81	120	114	-5.8%	21.1	0.2	22.5	4.6	14.0	1.0	2.4	2.6	BDL
6 22 2004	10	UB205	6.9	6.81	120	113	-6.1%	20.9	0.2	22.8	4.5	12.3	1.0	2.9	3.1	BDL
6 22 2004	NS	UC101	NM	NM	NM	NA	NA	NS	NS	NS	NS	NS	NS	NS	NS	NS
6 22 2004	NS	UC102	NM	NM	NM	NA	NA	NS	NS	NS	NS	NS	NS	NS	NS	NS
6 22 2004	4	UC201	6.0	9.80	680	621	-0.4%	4.7	1.0	153.2	5.0	111.6	2.4	8.9	4.6	BDL
6 22 2004	3	UC202	6.5	10.24	254	239	-2.0%	9.1	0.9	67.7	3.9	42.0	1.7	2.1	1.2	BDL
6 22 2004	2	UC203	7.1	9.35	105	104	-6.5%	13.6	0.5	22.2	4.7	14.2	3.3	1.2	0.9	BDL
6 22 2004	6	UC204	6.1	9.00	125	120	0.1%	5.9	0.6	25.1	9.4	14.5	5.0	2.0	1.9	BDL
6 22 2004	5	UC205	6.9	7.16	120	102	-16.3%	28.9	0.7	11.3	12.6	9.4	5.0	1.8	1.8	BDL
6 22 2004	89	West Weir	6.5	2.95	701	604	4.8%	59.0	1.4	155.5	7.3	117.4	2.4	12.9	4.4	BDL
6 22 2004	90	West Weir	6.5	2.95	700	559	5.1%	58.3	1.6	156.4	7.2	115.7	2.4	13.4	4.6	BDL
7 13 2004	dry	AA	NM	NM	NM	NS	NS	NS	NS	NS	NS	0.0	0.0	0.0	0.0	NS
7 13 2004	73	AB	6.7	8.10	316	NA	NA	26.0	NS	NS	NS	41.9	1.0	5.7	6.9	BDL
7 13 2004	76	AC	6.8	10.82	348	224	46.3%	33.4	0.3	22.3	2.9	60.7	1.3	4.8	5.8	0.3
7 13 2004	100	AD	6.3	6.58	415	267	34.5%	34.4	0.5	38.4	4.9	65.8	1.2	4.9	5.7	BDL
7 13 2004	45	AE	6.3	0.09	416	384	2.2%	50.5	0.3	94.4	5.4	32.6	0.7	1.6	1.0	BDL
7 13 2004	61	AF	6.4	0.19	437	441	2.5%	57.8	0.7	103.9	5.0	95.1	0.8	1.5	1.3	1.6
7 13 2004	19	AG	6.3	0.09	345	331	1.6%	37.4	0.5	78.2	5.9	47.6	0.7	7.5	7.1	7.7
7 13 2004	43	AH	6.4	0.15	709	683	5.6%	97.8	0.4	165.7	0.5	117.2	2.2	16.0	13.3	16.2
7 13 2004	107	AI	6.5	5.77	270	264	0.8%	29.1	1.1	60.3	9.3	41.9	1.0	3.7	4.8	2.2
7 13 2004	106	AJ	6.2	8.22	867	779	-0.7%	19.4	0.8	249.7	3.3	150.9	2.5	6.2	4.8	4.9
7 13 2004	20	AK	5.9	0.16	355	334	1.3%	24.8	0.5	77.7	19.7	60.1	1.2	4.4	2.8	2.1
7 13 2004	44	AL	6.6	0.05	727	657	-1.7%	55.3	0.2	195.7	5.5	138.1	1.0	2.8	1.8	1.6
7 13 2004	dry	AM	NM	NM	NM	NS	NS	NS	NS	NS	NS	0.0	0.0	0.0	0.0	NS
7 13 2004	110	AN	6.4	5.54	602	NA	NA	20.0	NS	NS	NS	98.1	2.1	6.6	5.7	NS
7 13 2004	102	AO	6.2	5.35	680	617	0.3%	38.8	1.7	183.3	3.0	120.0	1.7	5.0	4.1	5.7
7 13 2004	101	AP	6.2	3.31	950	NA	NA	57.5	NS	NS	NS	182.8	1.4	4.0	2.6	NS
7 13 2004	63	AQ	6.3	3.73	205	195	1.8%	30.9	1.2	43.0	2.6	37.8	0.6	2.2	1.1	BDL
7 13 2004	23	AR	6.0	2.85	983	909	-0.1%	36.1	1.8	233.3	10.3	143.9	3.1	15.6	20.8	4.7
7 13 2004	21	AS	6.4	0.13	721	729	7.4%	82.6	0.3	189.5	0.9	133.3	2.2	16.1	13.9	5.9
7 13 2004	22	AS	6.4	0.13	721	651	0.8%	85.2	0.2	177.2	0.8	111.3	1.9	13.5	11.6	5.9
7 13 2004	46	AT	6.6	0.50	890	803	-0.7%	105.3	0.3	219.1	7.6	143.1	1.5	9.7	11.4	5.5
7 13 2004	47	AT	6.6	0.50	890	795	-1.7%	105.8	0.2	217.9	7.6	144.4	1.4	10.8	11.2	5.5
7 13 2004	62	AU	6.2	1.12	90	75	-8.4%	12.3	0.5	14.6	4.5	10.5	0.5	1.4	0.8	BDL
7 13 2004	24	AV	6.2	11.16	162	149	2.3%	16.9	BDL	33.6	4.4	28.1	0.8	1.1	1.0	BDL
7 13 2004	114	AW	5.3	6.88	92	85	1.6%	2.0	0.6	20.8	3.4	10.9	1.2	1.7	1.6	BDL
7 13 2004	25	AX	5.9	9.47	100	94	0.4%	7.0	0.2	13.2	15.4	17.5	0.6	0.3	0.3	BDL
7 13 2004	35	AY	6.2	6.58	955	NA	NA	56.0	NS	NS	NS	151.7	1.3	12.3	12.0	NS
7 13 2004	115	AZ	8.1	11.77	109	135	-5.7%	23.9	0.6	24.4	5.7	20.2	1.2	1.8	1.0	BDL
7 13 2004	112	BA	5.3	12.63	85	77	-3.1%	1.5	1.0	15.7	8.4	8.9	1.2	2.1	1.2	BDL
7 13 2004	113	BB	5.0	7.51	137	127	-3.9%	1.1	0.6	35.7	3.7	16.3	1.3	1.9	2.3	BDL
7 13 2004	80	BC	6.7	2.95	457	264	47.0%	49.2	0.5	22.7	1.1	83.2	0.8	3.3	3.4	1.5
7 13 2004	66	BCa	6.6	0.17	838	738	0.4%	77.7	0.5	208.8	3.5	149.9	0.7	6.0	5.7	3.1
7 13 2004	67	BCb	7.0	0.16	1263	1106	0.3%	150.8	0.7	313.2	0.2	249.2	0.8	5.7	4.8	2.3
7 13 2004	68	BCc	6.9	0.13	450	425	-1.1%	79.0	0.3	100.5	1.5	57.5	0.5	10.4	12.7	3.2
7 13 2004	69	BCd	6.4	0.23	1548	1320	0.3%	142.5	0.5	394.3	3.2	244.4	1.8	25.1	20.5	20.8
7 13 2004	81	BCe	6.5	0.16	928	832	0.3%	94.9	0.6	227.2	4.9	143.5	1.1	13.9	11.5	13.4
7 13 2004	94	BCf	7.0	0.20	414	339	11.2%	80.0	0.5	58.3	0.5	78.3	0.4	2.6	2.1	1.0
7 13 2004	82	BCg	6.8	0.38	112	1001	-0.1%	131.6	0.6	284.9	0.3	164.6	1.1	21.4	23.4	7.9
7 13 2004	83	BCg	6.8	0.38	112	1058	7.8%	126.9	0.8	285.0	0.3	191.6	1.3	24.9	27.1	7.9
7 13 2004	84	BCh	7.1	0.28	666	403	33.7%	135.4	0.4	27.5	0.3	132.5	0.5	2.5	2.1	1.6
7 13 2004	85	BCi	6.7	0.31	653	433	38.9%	94.2	0.5	42.9	1.0	80.3	1.3	21.2	21.2	8.7
7 13 2004	86	BCj	6.8	0.85	568	393	33.0%	96.4	7.8	35.8	3.2	72.7	0.7	16.0	19.0	4.7
7 13 2004	75	BD	6.8	1.35	762	570	15.3%	121.4	0.9	107.7	0.3	139.7	0.6	6.1	5.8	3.1
7 13 2004	77	BE	7.0	0.95	175	166	-1.1%	57.3	0.6	21.2	5.5	33.6	0.3	3.9	4.9	1.0
7 13 2004	65	BF	6.4	4.30	131	63	-3.8%	21.5	5.5	7.1	2.5	9.8	0.2	2.0	1.4	BDL
7 13 2004	87	BG	6.5	1.62	576	326	44.9%	74.7	0.3	23.5	1.3	93.6	1.7	8.2	8.0	4.2
7 13 2004	88	BH	6.9	3.08	79	68	-9.7%	10.3	0.6	13.4	4.4	7.9	0.8	1.2	1.4	BDL
7 13 2004	89	BI	6.2	5.20	315	291	-2.3%	20.8	0.7	78.9	5.8	47.6	2.0	3.8	3.2	BDL
7 13 2004	28	BJ	6.0	11.11	257	243	1.4%	12.3	1.4	65.3	4.2	44.2	0.9	2.0	2.0	BDL
7 13 2004	27	BK	5.8	4.28	74	68	-3.7%	9.2	0.2	13.0	4.7	9.0	0.8	1.3	1.2	BDL
7 13 2004	39	BL	5.6	10.83	152	145	6.7%	8.4	0.4	35.7	2.5	16.7	0.9	5.2	4.5	BDL
7 13 2004	57	BM	5.6	0.65	75	68	7.6%	4.8	0.1	12.2	5.7	11.3	0.9	1.1	0.7	BDL
7 13 2004	49	BMa	6.6	0.09	1024	934	-1.3%	107.0	0.2	264.2	6.4	161.8	4.0	11.9	16.6	16.4
7 13 2004	50	BMb	6.2	0.17	1111	969	1.3%	75.1	0.4	281.8	8.9	189.7	3.1	9.3	10.1	17.0
7 13 2004	51	BMc	6.2	0.48	117	109	1.1%	10.8	BDL	21.1	7.4	17.4	1.4	1.4	1.0	1.4
7 13 2004	52	BMd	6.3	0.50	285	292	8.4%	32.9	0.5	58.9	11.6	56.4	1.2	3.7	2.9	6.0
7 13 2004	53	BMe	6.4	0.70	94	90	5.0%	18.7	0.1	13.5	3.1	14.9	0.5	1.5	1.2	2.8
7 13 2004	54	BMf	5.9	0.71	85	79	8.3%	6.7	0.2	14.7	3.0	12.9	0.9	1.3	1.3	BDL
7 13 2004	55	BMg	5.6	0.12	97	84	1.6%	3.5	0.3	19.5	4.3	12.2	0.8	1.3	1.3	BDL
7 13 2004	56	BMh	5.7	8.05	111	97	1.5%	2.7	0.3	24.6	2.9	13.0	1.1	1.7	1.9	BDL
7/13 2004	58	BN	6.4	0.51	432	388	-0.4%	64.6	0.3	80.5	13.2	67.4	1.2	5.6	4.1	11.4
7/13 2004	59	BN	6.4	0.51	432	358	-2.7%	70.2	0.7	84.3	13.1	67.9	1.2	5.7	4.1	10.6

Plymouth Well Sampling Summary

Updated 38519.0 SVK

NM = not measured BDL = below detection limit
NS = not sampled DND = did not detect
if listed as 0; below 1, rounded, but above detection limit

Sample Date	Sample ID	Borehole ID	pH	DO (mg/L)	Measured Conductivity (mS/cm)	Calc. Conductivity (mS/cm)	Net Charge	HCO_3^- Conc. (mg/L)	Acetate Conc. (mg/L)	Cl^- Conc. (mg/L)	SO_4^{-2} Conc. (mg/L)	Na^+ Conc. (mg/L)	K^+ Conc. (mg/L)	Ca^{+2} Conc. (mg/L)	Mg^{+2} Conc. (mg/L)	Fe^{+2} Conc. (mg/L)
7 13 2004	16	BO	5.2	0.72	77	71	-0.3%	2.6	0.3	15.7	4.9	9.0	1.5	1.1	1.3	BDL
7 13 2004	33	BOa	6.8	0.07	640	617	9.4%	100.3	0.2	143.0	0.3	149.4	1.4	3.1	2.3	1.9
7 13 2004	34	BOa	6.8	0.07	649	576	-0.3%	99.6	0.2	145.9	0.2	124.3	1.2	2.6	1.9	1.9
7 13 2004	35	BOb	6.6	0.16	1135	1022	-3.1%	108.3	0.2	307.6	0.3	160.1	2.1	22.0	20.9	14.6
7 13 2004	36	BOc	6.7	0.15	732	745	6.5%	107.4	30.6	171.2	0.2	120.0	2.0	22.4	20.8	11.2
7 13 2004	37	BOd	7.0	0.07	178	168	-2.3%	45.3	0.2	28.0	4.6	26.8	0.6	3.0	2.7	1.6
7 13 2004	38	BOe	6.8	0.13	827	759	-1.0%	148.8	10.7	186.1	0.2	148.1	1.3	9.5	9.4	5.7
7 13 2004	39	BOf	6.7	0.07	1327	1221	-2.4%	201.6	5.1	344.4	0.2	214.2	2.1	24.9	23.0	12.2
7 13 2004	40	BOg	6.6	0.20	853	810	-3.5%	118.0	13.5	214.3	0.4	115.6	1.5	21.8	18.3	20.5
7 13 2004	41	BOh	6.8	0.12	219	203	-6.5%	31.3	BDL	47.2	2.5	28.6	0.4	3.3	2.8	6.1
7 13 2004	17	BP	6.5	0.07	613	549	2.0%	81.0	16.0	131.5	0.2	95.4	1.6	10.0	9.7	5.9
7 13 2004	60	BQ	6.0	1.21	64	58	-6.6%	6.7	0.8	10.3	5.7	7.5	0.7	0.6	1.1	BDL
7 13 2004	42	BR	5.9	0.11	73	66	-5.3%	7.2	0.2	13.4	4.8	8.4	0.9	1.0	1.2	BDL
7 13 2004	30	BS	5.6	7.20	83	82	1.6%	5.2	0.3	17.9	4.7	10.6	0.8	1.9	1.6	BDL
7 13 2004	70	BTa	7.0	0.10	1085	674	29.1*%	151.1	0.6	95.8	4.0	202.9	1.6	6.7	4.9	1.5
7 13 2004	71	BTa	7.0	0.10	1085	672	28.2*%	150.5	0.4	97.4	4.0	200.2	1.5	6.6	4.9	1.7
7 13 2004	78	BTb	7.1	0.12	445	406	-0.2%	129.2	0.8	73.7	0.3	93.2	0.6	1.2	0.8	1.4
7 13 2004	93	BTc	7.2	0.05	370	NA	NA	120.2	NS	NS	NS	79.1	0.5	0.5	0.5	NS
7 13 2004	103	BTd	7.1	0.14	427	393	-0.5%	127.5	0.4	70.9	0.7	91.8	0.6	0.5	0.4	BDL
7 13 2004	105	BTe	7.3	0.11	255	240	-1.5%	77.2	0.9	40.9	1.6	54.3	0.4	0.2	0.1	BDL
7 13 2004	72	BTf	7.7	0.09	213	NA	NA	63.0	NS	NS	NS	51.1	0.3	0.2	0.1	NS
7 13 2004	109	BTg	7.4	0.17	234	221	-1.7%	63.1	1.1	43.5	1.6	48.6	0.4	0.3	0.2	BDL
7 13 2004	79	BTh	7.3	0.11	227	NA	NA	92.0	1.3	25.2	2.5	NS	NS	NS	NS	BDL
7 13 2004	104	BTi	6.9	0.10	142	134	-4.5%	41.1	0.7	19.3	3.8	21.9	0.3	1.6	1.8	3.8
7 13 2004	108	BTj	6.9	0.16	526	494	-2.4%	94.5	21.6	112.5	0.9	106.0	0.4	1.9	1.8	1.7
7 13 2004	96	BTk	6.3	0.20	1034	923	-3.7%	30.4	0.7	291.4	2.7	150.6	2.2	17.7	8.1	34.3
7 13 2004	90	BU	5.9	9.72	129	108	3.8%	9.0	0.3	24.7	2.2	14.1	0.4	3.8	2.3	BDL
7 13 2004	64	BX	6.5	1.87	114	113	10.7%	30.1	0.8	12.8	3.5	10.7	1.5	7.9	3.3	1.6
7 13 2004	91	BY	5.8	4.58	1857	1563	0.2%	31.6	0.4	535.7	19.6	237.0	3.7	24.4	21.5	BDL
7 13 2004	92	BZ	6.8	4.59	320	299	2.6%	87.1	0.4	34.7	24.2	62.3	0.8	2.8	2.5	2.9
7 13 2004	74	CA	6.5	7.70	285	NA	NA	24.1	NS	11.9	NS	38.3	0.9	4.9	6.0	BDL
7 13 2004	32	CB	5.9	6.87	500	455	1.5%	22.8	0.2	130.0	10.9	76.6	1.3	8.1	7.7	BDL
7 13 2004	97	CC	6.0	5.23	99	85	-0.9%	7.8	0.5	18.6	4.0	11.2	1.0	1.7	1.6	BDL
7 13 2004	98	CD	6.6	6.02	321	306	5.8%	63.0	0.4	49.7	11.8	55.8	1.0	5.0	3.0	6.6
7 13 2004	59	CD	6.6	6.02	321	228	23.3*%	71.0	0.5	17.8	4.3	50.7	1.0	4.6	4.5	6.7
7 13 2004	31	ST	5.7	4.48	257	242	1.0%	6.2	0.0	61.4	13.7	40.5	1.3	2.9	2.6	BDL
7 13 2004	14	UB101	5.1	12.95	56	50	-0.8%	0.9	0.4	9.4	6.1	6.2	1.2	0.9	0.7	BDL
7 13 2004	15	UB102	5.2	12.74	55	49	-0.3%	1.2	0.2	8.9	6.2	6.2	0.8	0.9	0.8	BDL
7 13 2004	9	UB201	4.8	13.30	522	478	-1.8%	0.5	0.4	149.3	8.4	86.2	1.2	6.0	2.1	BDL
7 13 2004	8	UB202	4.9	12.75	170	155	-0.5%	0.7	0.2	47.9	4.8	23.7	1.0	2.6	1.6	BDL
7 13 2004	6	UB203	4.9	12.81	107	96	4.1%	0.6	0.3	23.9	3.6	9.7	2.8	3.0	2.3	BDL
7 13 2004	7	UB204	5.1	12.50	63	53	5.9%	1.0	0.3	10.6	4.5	6.5	0.8	1.5	1.1	BDL
7 13 2004	10	UB205	4.9	8.77	123	NA	NA	1.2	NS	NS	NS	12.5	1.4	2.7	2.9	NS
7 13 2004	11	UB205	4.9	8.77	123	NA	NA	1.1	NS	NS	NS	12.6	3.0	2.6	2.9	NS
7 13 2004	12	UC101	5.2	12.42	59	55	2.8%	1.3	0.2	9.7	6.7	6.3	2.5	0.9	1.0	BDL
7 13 2004	13	UC102	5.3	12.65	58	50	6.5%	1.9	0.2	7.1	7.0	4.8	2.6	1.5	1.0	BDL
7 13 2004	4	UC201	5.2	12.90	621	NA	NA	1.5	NS	NS	NS	93.8	2.4	7.8	3.8	NS
7 13 2004	3	UC202	5.6	11.85	188	173	-1.0%	3.3	0.5	47.6	4.8	22.7	1.6	1.4	0.9	BDL
7 13 2004	2	UC203	5.5	10.65	135	120	3.4%	3.2	0.2	30.7	2.8	15.9	4.7	2.1	1.7	BDL
7 13 2004	5	UC204	5.6	9.95	125	112	1.7%	3.4	0.2	23.2	9.8	13.3	5.4	1.8	1.7	BDL
7 13 2004	1	UC205	5.5	7.61	109	90	8.6%	5.7	0.3	12.0	12.2	8.4	6.1	3.4	2.2	BDL
7 13 2004	dry	East Weir	NM	NM	NM	NS	NS	NS	NS	NS	NS	0.0	0.0	0.0	0.0	NS
7 13 2004	18	Field blank 1	8.1	NM	18	7	-47.4%	4.1	0.6	0.8	0.2	0.6	0.1	0.1	0.0	0.0
7 13 2004	111	Field blank 2	7.5	NM	18	NA	NA	BDL	NS	NS	NS	1.6	0.1	0.1	0.1	NS
7 13 2004	48	West Weir	6.9	8.63	763	694	0.4%	92.7	0.2	182.8	9.1	176.4	2.4	18.1	5.5	BDL
8 12 2004	dry	AA	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
8 12 2004	46	AB	6.8	6.49	146	143	-0.3%	9.8	0.4	30.3	10.8	17.5	1.1	2.2	4.1	0.4
8 12 2004	45	AC	6.5	9.29	214	213	-6.6%	45.0	0.4	44.1	7.6	32.0	0.4	2.8	4.0	0.1
8 12 2004	43	AD	6.4	4.79	353	330	0.3%	52.5	0.9	71.6	12.4	60.0	1.1	3.7	4.3	0.0
8 12 2004	44	AD	6.4	4.79	363	327	-0.6%	54.1	0.4	71.1	12.3	58.6	1.1	3.4	4.4	0.0
8 12 2004	67	AE	6.5	0.13	720	658	2.6%	76.0	BDL	176.5	5.0	142.3	1.4	3.9	2.9	1.4
8 12 2004	70	AF	6.5	0.05	580	513	0.5%	65.8	BDL	130.2	5.1	101.4	1.2	4.2	4.2	3.9
8 12 2004	29	AG	6.3	0.07	538	495	-3.5%	37.0	0.3	135.9	5.9	59.5	1.2	13.3	11.8	15.7
8 12 2004	34	AH	6.2	0.08	916	797	-0.1%	69.7	0.4	226.2	4.0	133.3	2.2	13.8	12.9	19.3
8 12 2004	51	AI	6.4	2.01	251	241	-6.9%	40.2	0.5	52.5	6.0	35.2	0.6	2.8	3.5	7.9
8 12 2004	47	AJ	6.2	2.81	612	555	-2.3%	45.6	0.5	158.5	6.5	106.1	1.5	4.0	3.3	4.0
8 12 2004	69	AK	6.5	0.45	379	350	-2.4%	39.5	BDL	83.2	14.3	62.1	1.3	4.2	2.4	3.7
8 12 2004	74	AL	6.6	0.13	539	477	1.6%	69.0	0.5	122.7	4.1	103.9	0.7	1.5	0.9	1.2
8 12 2004	dry	AM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
8 12 2004	49	AN	6.2	1.91	479	444	0.0%	28.3	0.6	128.1	2.7	83.3	1.2	3.8	3.7	0.2
8 12 2004	53	AO	6.3	1.16	787	716	-1.3%	37.5	0.4	221.2	2.6	139.8	1.6	4.7	4.7	4.1
8 12 2004	87	AP	6.5	1.06	609	559	-0.7%	67.2	BDL	152.8	2.4	119.9	0.5	1.5	1.0	1.0
8 12 2004	88	AP	6.5	1.06	609	550	0.8%	66.2	BDL	148.3	2.1	119.8	0.8	1.6	1.0	1.1
8 12 2004	108	AQ	6.7	1.29	380	349	-0.6%	37.0	0.5	91.3	3.0	53.2	1.1	8.3	5.5	1.6
8 12 2004	27	AR	6.1	1.65	1332	1171	-0.7%	44.3	0.4	381.9	12.5	188.9	4.0	20.8	27.3	4.2
8 12 2004	98	AS	6.5	0.05	854	736	-0.1%	75.2	0.4	218.4	0.8	125.4	2.3	16.4	13.0	3.5
8 12 2004	99	AS	6.5	0.05	854	743	0.5%	78.1	0.3	211.2	1.1	123.5	2.2	15.5	13.1	3.8
8 12 2004	75	AT	6.5	0.10	630	575	-0.1%	40.9	0.4	164.6	6.0	82.2	1.2	12.8	14.4	3.3
8 12 2004	79	AU	6.4	0.63	84	73	-5.8%	12.6	0.4	13.6	4.6	10.9	0.6	1.1	0.7	0.1
8 12 2004	55	AV	6.5	9.30	238	206	6.3%	17.3	0.4	51.2	1.3	41.2	1.8	1.2	1.2	0.0
8 12 2004	56	AV	6.5	9.30	238	202	3.9%	17.1	0.7	51.3	1.3	38.5	1.1	1.7	1.5	0.0
8 12 2004	112	AW	7.0	1.63	93	94	-14.1%	21.5	0.2	19.4	2.9	9.9	1.2	2.7	1.6	0.0
8 12 2004	71	AX	6.7	2.35	176	164	-2.5%	11.6	0.5	40.3	7.0	25.7	1.0	1.5	2.2	0.1
8 12 2004	96	AY	6.5	0.55	656	557	2.8%	65.0	0.4	145.4	8.8	114.6	1.1	5.2	5.0	2.3

Plymouth Well Sampling Summary

Updated 38519.0 SVK

NM = not measured
NS = not sampled
BDL = below detection limit
DND = did not detect
if listed as 0, below 1, rounded, but above detection limit

Sample Date	Sample ID	Borehole ID	pH	DO (mg/L)	Measured Conductivity (mS/cm)	Calc Conductivity (mS/cm)	Net Charge	HCO_3^- Conc. (mg/L)	Acetate Conc. (mg/L)	Cl^- Conc. (mg/L)	SO_4^{-2} Conc. (mg/L)	Na^+ Conc. (mg/L)	K^+ Conc. (mg/L)	Ca^{+2} Conc. (mg/L)	Mg^{+2} Conc. (mg/L)	Fe^{+2} Conc. (mg/L)
8 12 2004	113	AZ	6.8	9.12	73	143	-8.6%	15.7	0.5	34.8	4.2	19.4	1.5	3.4	1.5	0.0
8 12 2004	114	BA	6.5	13.30	75	73	-11.6%	15.5	0.3	11.0	7.6	10.0	1.0	1.2	0.6	0.0
8 12 2004	115	BB	6.3	4.50	126	127	-12.2%	12.8	0.4	33.1	4.0	15.4	1.1	1.9	2.0	0.0
8 12 2004	91	BC	6.8	3.16	74	69	-5.9%	10.8	0.3	11.7	6.2	11.2	0.7	0.6	0.4	0.0
8 12 2004	54	BCa	6.6	0.70	702	611	1.7%	100.5	0.4	157.1	0.5	123.3	0.9	7.0	6.6	2.7
8 12 2004	29	BCb	6.2	0.67	437	355	5.9%	52.9	0.8	82.8	0.3	72.9	0.4	5.3	5.0	2.1
8 12 2004	26	BCc	6.5	0.62	256	232	6.6%	61.0	0.5	34.1	3.9	42.2	0.4	3.9	3.6	1.9
8 12 2004	105	BCd	6.8	0.64	191	166	-7.6%	49.6	0.6	28.1	3.3	23.1	0.8	3.3	3.1	2.6
8 12 2004	103	BCe	7.0	0.65	125	117	-0.7%	30.2	0.3	18.5	3.3	20.0	0.3	1.6	1.4	2.1
8 12 2004	109	BCf	6.7	0.90	588	539	1.7%	44.3	0.5	142.6	8.6	93.8	1.2	7.1	7.7	3.0
8 12 2004	106	BCg	6.8	0.65	549	505	0.0%	89.9	0.5	120.5	3.6	72.1	0.8	12.2	14.5	3.4
8 12 2004	110	BCh	6.8	0.68	901	792	0.0%	105.3	0.4	218.1	0.2	114.0	0.8	21.6	22.5	5.2
8 12 2004	111	BCh	6.8	0.68	901	830	-1.3%	105.6	0.4	225.2	0.2	112.8	0.8	21.8	22.9	3.2
8 12 2004	107	BCi	6.7	0.63	353	333	-2.2%	70.0	0.3	65.7	8.4	51.6	0.9	7.7	4.8	9.0
8 12 2004	104	BCj	6.9	0.73	163	152	-1.3%	51.9	0.2	19.0	4.2	20.9	0.4	2.4	4.3	3.4
8 12 2004	102	BD	6.8	0.59	655	581	0.8%	109.7	0.4	140.8	0.1	99.7	0.5	10.1	12.4	2.5
8 12 2004	25	BE	6.5	0.61	171	154	5.4%	40.7	0.4	20.9	5.3	15.3	0.3	6.0	6.3	2.9
8 12 2004	76	BF	6.6	5.63	164	141	-7.8%	18.0	0.4	35.3	2.3	17.2	0.2	3.0	3.0	0.1
8 12 2004	77	BF	6.6	5.63	164	139	-10.4%	18.1	0.4	35.4	2.5	15.3	0.2	3.3	3.2	0.1
8 12 2004	63	BG	6.4	0.87	525	470	1.6%	44.9	BDL	123.9	6.1	82.1	1.6	6.9	6.6	3.5
8 12 2004	32	BH	6.3	5.12	77	75	-3.3%	12.7	0.4	15.0	4.0	9.5	0.9	1.4	1.3	0.0
8 12 2004	33	BH	6.3	6.42	77	77	-11.5%	12.3	0.5	16.1	4.1	8.2	0.8	1.5	1.6	0.0
8 12 2004	30	BI	6.5	6.42	111	105	-7.5%	17.2	0.3	22.5	4.6	15.2	1.1	1.6	1.3	0.1
8 12 2004	90	BJ	6.5	8.75	372	374	5.7%	25.2	BDL	67.4	4.0	52.4	1.0	3.3	2.6	0.2
8 12 2004	92	BK	6.6	0.88	74	69	-1.4%	9.7	0.2	12.6	4.6	10.3	0.9	1.0	0.9	0.0
8 12 2004	55	BL	6.0	9.70	214	NA	NA	11.3	0.3	48.5	2.7	NS	NS	NS	NS	0.0
8 12 2004	100	BM	7.0	0.10	75	70	-9.1%	13.3	0.4	11.7	5.9	11.8	0.6	0.3	0.3	0.0
8 12 2004	85	BMa	6.6	3.44	434	400	0.6%	48.7	BDL	100.9	2.4	53.5	2.0	9.0	11.1	6.0
8 12 2004	87	BMb	6.4	0.10	557	516	-3.6%	31.8	BDL	147.6	5.3	70.9	1.9	9.4	10.4	13.8
8 12 2004	94	BMc	6.5	4.20	114	104	-2.5%	17.5	0.2	19.9	5.2	18.5	1.0	0.8	0.6	0.3
8 12 2004	24	BMd	6.0	0.09	303	283	-8.2%	14.4	0.7	76.8	3.7	34.6	1.1	5.6	3.7	13.8
8 12 2004	23	BMe	5.9	4.33	295	268	-7.0%	8.3	0.6	81.2	1.7	34.2	1.2	5.7	4.2	2.6
8 12 2004	78	BMf	6.7	9.33	91	84	-2.5%	9.3	0.3	17.6	4.5	13.2	0.9	0.9	0.8	0.1
8 12 2004	21	BMg	6.1	9.24	117	109	-3.5%	7.3	0.3	27.4	3.2	15.2	1.1	1.7	1.5	0.2
8 12 2004	22	BMg	6.1	9.24	117	NA	NA	7.0	NS	NS	NS	15.0	1.0	1.7	1.6	0.2
8 12 2004	97	BMh	6.6	8.64	140	126	-2.1%	8.0	0.3	33.0	2.3	17.5	1.3	2.0	2.1	0.0
8 12 2004	93	BN	6.6	0.09	108	98	4.4%	19.8	0.2	14.0	4.9	15.4	0.5	2.0	1.4	3.3
8 12 2004	73	BO	6.9	0.14	76	77	-1.8%	12.9	0.4	13.4	4.7	11.4	1.1	1.5	0.9	0.1
8 12 2004	17	BOa	6.3	0.08	895	767	2.6%	78.9	0.6	213.4	0.2	138.8	1.7	13.6	11.7	9.2
8 12 2004	88	BOb	6.3	0.07	735	658	-0.7%	23.3	BDL	206.4	0.1	84.8	1.4	18.2	18.2	3.4
8 12 2004	84	BOc	6.3	0.07	837	751	-0.1%	25.6	BDL	235.1	0.2	81.6	1.8	26.2	27.0	5.2
8 12 2004	80	BOd	6.3	0.10	687	619	0.5%	23.5	0.4	185.1	0.8	66.4	1.5	21.9	21.8	5.6
8 12 2004	18	BOe	6.1	0.10	849	743	0.4%	24.7	0.8	231.7	0.2	109.1	1.4	17.6	16.4	9.9
8 12 2004	52	BOf	6.6	0.09	493	442	0.5%	43.1	BDL	121.2	0.4	76.9	1.0	6.8	5.6	2.3
8 12 2004	31	BOg	6.8	0.12	145	136	1.6%	28.7	BDL	23.6	3.9	21.6	0.4	2.8	2.1	2.7
8 12 2004	83	BOh	6.8	0.09	151	150	-4.2%	25.0	BDL	32.2	3.6	24.1	0.3	1.8	1.6	2.8
8 12 2004	72	BP	6.6	0.07	422	355	2.9%	48.1	1.1	93.6	4.7	70.6	1.1	5.1	4.9	2.7
8 12 2004	19	BQ	6.4	0.07	59	58	-11.3%	10.3	0.6	9.9	5.3	8.3	0.7	0.4	0.6	0.0
8 12 2004	61	BR	7.1	0.07	72	80	-22.8%	14.6	BDL	17.7	5.2	9.6	0.8	0.6	0.8	0.1
8 12 2004	64	BS	6.6	0.23	67	64	-8.5%	12.4	BDL	11.6	4.2	8.5	0.8	1.1	0.9	0.1
8 12 2004	65	BTa	6.8	1.02	555	496	1.3%	105.5	BDL	113.0	0.3	111.1	1.0	1.9	1.3	1.4
8 12 2004	66	BTa	6.8	1.02	555	495	1.3%	105.4	BDL	113.4	0.2	110.9	0.9	2.0	1.3	1.4
8 12 2004	60	BTb	6.9	0.79	423	381	-1.0%	83.2	0.3	83.7	0.5	85.9	0.6	0.6	0.4	1.0
8 12 2004	41	BTc	6.9	0.73	255	252	2.5%	83.8	0.5	39.2	1.5	60.0	0.5	0.2	0.2	0.6
8 12 2004	37	BTd	6.9	0.72	220	192	3.0%	61.8	0.4	29.5	1.3	45.6	0.3	0.1	0.0	0.4
8 12 2004	39	BTe	7.0	0.71	236	212	1.5%	70.7	0.8	32.5	1.6	49.8	0.4	0.1	0.1	0.4
8 12 2004	35	BTf	6.5	0.68	641	568	0.1%	72.8	0.3	148.7	0.3	98.0	0.9	7.1	9.4	10.9
8 12 2004	40	BTg	6.7	0.68	422	387	1.3%	91.2	0.4	75.9	3.9	58.1	1.2	8.6	10.1	7.0
8 12 2004	57	BTh	6.4	0.65	565	511	-0.6%	33.8	0.3	149.2	0.2	84.0	1.0	7.7	7.9	4.8
8 12 2004	59	BTi	6.5	0.63	138	112	-12.7%	25.8	0.4	21.4	3.4	19.5	0.3	BDL	BDL	3.7
8 12 2004	38	BTj	6.6	0.68	507	453	0.1%	41.1	0.3	126.3	0.9	92.9	0.5	1.2	1.9	2.3
8 12 2004	53	BTk	6.1	0.85	943	840	-4.7%	26.5	0.4	269.5	3.0	134.6	2.2	15.7	8.3	21.9
8 12 2004	62	BU	6.5	7.80	161	149	-0.9%	16.4	BDL	35.9	2.6	18.9	0.5	5.1	2.7	0.0
8 12 2004	95	BX	6.7	0.69	116	101	6.7%	29.4	0.3	11.1	3.4	10.5	1.3	6.1	2.5	2.3
8 12 2004	65	BY	6.3	0.95	1901	NA	NA	NS	BDL	557.3	13.4	326.3	2.6	15.1	16.3	0.1
8 12 2004	31	BZ	6.4	1.20	345	317	1.3%	30.6	0.5	81.2	3.3	58.0	0.9	3.3	2.9	3.2
8 12 2004	50	CA	6.5	1.20	320	296	2.1%	32.3	1.6	59.3	22.7	53.5	1.9	4.1	4.5	0.3
8 12 2004	28	CB	6.4	NM	537	451	3.1%	38.3	0.9	121.8	7.7	82.1	1.2	7.0	6.8	0.5
8 12 2004	42	CC	6.9	7.20	94	92	-9.6%	16.4	0.3	19.4	3.9	12.5	0.9	1.2	1.4	0.0
8 12 2004	45	CD	6.5	1.17	310	280	1.8%	48.8	0.9	54.2	9.3	48.1	0.9	3.9	3.9	6.7
8 12 2004	dry	East Wels	NS	NM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
8 12 2004	1	Field blank	5.6	NM	21	6	35.0%	0.2	0.6	0.6	0.2	1.2	0.4	0.2	0.0	0.1
8 12 2004	36	ST	6.2	4.55	570	522	-1.5%	18.8	1.1	158.2	5.6	80.6	3.2	9.2	5.7	0.0
8 12 2004	15	UB101	5.4	10.50	53	45	0.1%	1.1	0.8	8.4	5.4	7.3	0.6	0.4	0.3	0.1
8 12 2004	16	UB102	5.4	9.14	31	45	3.3%	1.3	0.3	8.1	5.4	7.6	0.6	0.4	0.3	0.0
8 12 2004	7	UB201	4.8	8.61	581	510	-1.5%	0.4	0.7	162.9	5.1	39.2	1.5	8.5	2.8	0.0
8 12 2004	8	UB202	5.1	3.75	217	195	-0.2%	0.8	0.9	35.0	5.3	32.3	1.2	2.5	1.5	0.0
8 12 2004	9	UB203	5.5	8.97	63	54	3.1%	1.7	0.7	10.1	5.5	9.6	0.6	0.4	0.3	0.0
8 12 2004	10	UB204	5.5	8.60	58	54	0.0%	1.5	0.7	11.4	4.3	7.8	0.7	0.8	0.6	0.0
8 12 2004	11	UB104	5.5	8.60	58	52	-0.8%	1.6	1.0	10.6	4.3	6.2	0.7	1.3	1.0	0.1
8 12 2004	12	UB205	5.4	7.56	113	95	7.4%	2.5	0.7	21.5	4.4	11.7	1.1	2.5	2.6	0.1
8 12 2004	13	UC101	5.5	10.20	57	51	0.3%	1.9	0.9	9.1	6.0	7.8	0.3	0.5	0.5	0.0
8 12 2004	14	UC102	5.5	8.34	54	50	5.7%	1.9	1.1	7.4	6.3	6.4	2.2	1.0	0.6	0.0
8 12 2004	2	UC201	4.8	10.55	515	455	-0.6%	0.4	1.5	140.9	6.7	82.3	1.9	5.3	2.5	0.0
8 12 2004	3	UC202	5.1	10.38	204	191	6.8%	0.9	1.3	50.2	5.2	33.9	2.1	BDL	BDL	0.0

Plymouth Well Sampling Summary

Updated 38519.0 SVK

NM = not measured
NS = not sampled
BDL = below detection limit
DND = did not detect
if listed as 0, below 1, rounded, but above detection limit

Sample Date	Sample ID	Borehole ID	pH	DO (mg/L)	Measured Conductivity (mS/cm)	Calc Conductivity (mS/cm)	Net Charge	HCO_3^- Conc. (mg/L)	Acetate Conc. (mg/L)	Cl^- Conc. (mg/L)	SO_4^{-2} Conc. (mg/L)	Na^+ Conc. (mg/L)	K^+ Conc. (mg/L)	Ca^{+2} Conc. (mg/L)	Mg^{+2} Conc. (mg/L)	Fe^{+2} Conc. (mg/L)
8 12 2004	5	UC203	4.8	7.02	120	108	0.5%	0.6	1.3	28.7	2.9	15.3	3.4	1.3	1.1	0.0
8 12 2004	4	UC204	5.1	6.56	145	125	2.3%	1.0	1.0	29.5	8.2	17.4	5.1	1.4	1.5	0.1
8 12 2004	6	UC205	4.9	5.26	96	82	12.7%	1.2	1.2	18.7	12.0	7.8	5.3	2.3	2.1	0.1
8 12 2004	101	West Weir	6.7	NM	429	352	2.6%	58.6	0.7	86.5	7.8	64.1	1.9	13.0	3.4	0.7
9 23 2004	dry	AA	NM	NM	NM	NM	NM	NS	NS	NS	NS	0.0	0.0	0.0	0.0	NS
9 23 2004	dry	AB	NM	NM	NM	NM	NM	NS	NS	NS	NS	0.0	0.0	0.0	0.0	NS
9 23 2004	dry	AC	NM	NM	NM	NM	NM	NS	NS	NS	NS	0.0	0.0	0.0	0.0	NS
9 23 2004	dry	AD	NM	NM	NM	NM	NM	NS	NS	NS	NS	0.0	0.0	0.0	0.0	NS
9 23 2004	32	AE	6.6	1.42	248	227	5.8%	55.3	0.8	37.6	6.4	53.8	0.5	0.3	0.3	BDL
9 23 2004	33	AE	6.6	1.42	248	226	5.3%	57.8	0.4	36.9	6.2	51.9	0.6	1.0	0.5	BDL
9 23 2004	16	AF	5.2	[illegible]	136	128	13.5%	33.5	0.4	15.9	3.9	34.8	0.4	0.5	0.3	1.0
9 23 2004	35	AG	6.3	1.22	574	519	-2.2%	26.5	0.5	147.5	5.2	66.0	1.5	13.3	11.4	15.8
9 23 2004	34	AH	6.5	1.06	324	304	4.6%	45.1	0.4	69.5	11.5	58.2	1.0	3.3	2.9	5.7
9 23 2004	dry	AI	NM	NM	NM	NM	NM	NS	NS	NS	NS	0.0	0.0	0.0	0.0	NS
9 23 2004	dry	AJ	NM	NM	NM	NM	NM	NS	NS	NS	NS	0.0	0.0	0.0	0.0	NS
9 23 2004	31	AK	6.1	1.26	285	270	-0.9%	30.5	0.5	63.1	13.3	43.0	1.2	3.6	1.7	2.6
9 23 2004	36	AL	6.6	1.17	231	203	8.2%	50.0	0.5	35.4	3.3	49.6	0.4	0.7	0.3	BDL
9 23 2004	dry	AM	NM	NM	NM	NM	NM	NS	NS	NS	NS	0.0	0.0	0.0	0.0	NS
9 23 2004	dry	AN	NM	NM	NM	NM	NM	NS	NS	NS	NS	0.0	0.0	0.0	0.0	NS
9 23 2004	dry	AO	NM	NM	NM	NM	NM	NS	NS	NS	NS	0.0	0.0	0.0	0.0	NS
9 23 2004	dry	AP	NM	NM	NM	NM	NM	NS	NS	NS	NS	0.0	0.0	0.0	0.0	NS
9 23 2004	dry	AQ	NM	NM	NM	NM	NM	NS	NS	NS	NS	0.0	0.0	0.0	0.0	NS
9 23 2004	dry	AR	NM	NM	NM	NM	NM	NS	NS	NS	NS	0.0	0.0	0.0	0.0	NS
9 23 2004	30	AS	6.7	1.10	79	65	11.5%	20.6	0.5	6.8	1.9	15.7	0.5	0.4	0.2	BDL
9 23 2004	43	AT	6.3	1.03	855	NA	NA	60.4	NS	NS	NS	133.5	1.5	13.1	12.7	4.3
9 23 2004	44	AT	6.3	1.03	855	750	3.1%	63.3	0.3	206.6	12.3	133.5	1.5	13.4	13.0	4.1
9 23 2004	83	AU	7.1	1.03	83	NA	NA	15.5	0.4	12.7	5.0	0.0	0.0	BDL	BDL	BDL
9 23 2004	71	AV	6.2	6.21	410	356	4.8%	13.4	BDL	103.4	2.1	47.2	2.1	11.1	10.2	BDL
9 23 2004	98	AW	7.2	1.04	95	94	-16.5%	22.3	0.5	19.3	3.4	11.8	1.0	1.4	1.2	BDL
9 23 2004	99	AW	7.2	1.04	95	87	-9.8%	14.7	0.5	19.3	3.3	10.3	1.0	2.0	1.7	BDL
9 23 2004	73	AX	6.9	7.68	68	60	-5.6%	9.2	0.7	12.2	2.8	10.8	0.5	0.1	0.2	BDL
9 23 2004	74	AY	6.2	4.22	583	518	4.1%	28.6	0.4	148.7	1.9	94.0	1.7	7.7	7.3	BDL
9 23 2004	100	AZ	6.7	7.78	153	130	4.7%	BDL	0.4	33.5	4.8	20.1	1.4	2.4	1.5	BDL
9 23 2004	101	BA	6.4	12.98	70	67	-11.6%	14.2	0.1	10.5	6.6	9.5	0.7	1.0	0.6	BDL
9 23 2004	102	BB	6.5	5.12	84	136	-1.3%	7.5	0.2	35.6	3.3	21.2	1.2	1.4	1.8	BDL
9 23 2004	75	BC	6.9	2.93	77	71	-8.4%	13.3	0.4	12.2	5.5	11.3	0.7	0.6	0.4	BDL
9 23 2004	90	BCa	7.2	0.21	122	104	6.5%	42.3	0.7	10.2	0.7	24.6	0.3	0.6	0.5	BDL
9 23 2004	93	BCb	6.9	0.22	372	339	4.1%	52.3	0.5	78.1	2.3	64.4	0.6	4.1	4.4	1.5
9 23 2004	81	BCc	6.4	0.23	651	NA	NA	56.1	0.9	153.8	5.8	0.0	0.0	BDL	BDL	7.5
9 23 2004	92	BCd	6.8	0.24	434	375	1.7%	37.6	0.4	94.6	5.1	63.2	0.8	7.1	4.7	5.2
9 23 2004	56	BCe	7.0	0.27	173	103	25.4%	35.9	0.4	15.9	6.1	4.4	0.0	0.3	0.2	2.0
9 23 2004	91	BCf	6.8	0.30	145	124	9.6%	27.7	0.6	19.8	2.9	28.6	0.3	0.5	0.4	BDL
9 23 2004	60	BCg	6.8	0.20	478	442	2.7%	45.6	0.4	117.1	1.3	80.7	0.7	5.5	6.2	2.1
9 23 2004	54	BCh	7.0	0.24	208	NA	NA	41.7	NS	NS	NS	0.0	0.0	BDL	BDL	BDL
9 23 2004	55	BCh	7.0	0.24	208	NA	NA	45.4	NS	NS	NS	107.2	1.1	7.1	7.1	1.0
9 23 2004	52	BCi	6.3	0.24	693	639	-0.2%	44.4	0.3	150.1	3.8	114.3	1.6	7.6	5.8	11.5
9 23 2004	51	BCj	6.8	0.32	218	200	4.3%	42.6	0.6	28.0	14.7	42.0	0.5	1.3	0.9	2.9
9 23 2004	80	BD	6.9	1.04	143	126	9.6%	35.3	0.6	18.8	0.7	29.1	0.3	0.7	0.6	BDL
9 23 2004	78	BE	6.6	1.11	187	171	1.9%	28.6	0.3	31.1	5.7	28.3	0.8	3.0	1.6	6.3
9 23 2004	75	BF	6.7	1.60	104	125	-13.3%	27.1	0.5	31.3	5.8	11.7	0.2	1.4	0.8	6.6
9 23 2004	77	BF	6.7	1.50	103	121	-19.2%	21.2	0.6	31.9	5.8	10.2	0.2	1.6	1.0	6.3
9 23 2004	87	BG	6.6	2.03	522	477	4.1%	65.2	0.7	111.9	9.8	94.4	1.3	5.6	4.9	3.2
9 23 2004	88	BG	6.6	2.03	522	456	6.6%	63.0	0.4	112.7	9.8	98.1	1.5	6.1	5.3	3.0
9 23 2004	96	BH	7.3	2.76	80	72	-6.6%	10.6	0.2	13.1	5.7	10.6	0.7	0.8	0.8	0.0
9 23 2004	61	BI	6.6	1.45	351	333	-4.1%	25.8	0.3	89.1	10.6	53.3	1.8	4.6	4.4	BDL
9 23 2004	72	BJ	6.3	9.44	338	289	8.0%	14.3	0.3	74.6	4.4	45.4	1.3	6.2	6.0	BDL
9 23 2004	85	BK	6.8	1.65	62	73	-9.9%	13.8	0.5	13.3	4.9	10.3	0.8	1.0	0.8	BDL
9 23 2004	69	BL	7.6	3.91	768	700	-1.4%	37.8	0.3	217.0	1.8	108.8	3.6	15.3	12.4	BDL
9 23 2004	49	BM	6.9	1.34	72	41	27.6%	15.9	0.5	12.6	4.2	0.2	0.0	0.0	0.0	0.0
9 23 2004	45	BMa	6.3	1.01	773	695	2.5%	53.2	0.6	189.9	10.3	112.8	1.9	15.1	13.8	10.0
9 23 2004	47	BMb	6.3	0.59	485	450	3.5%	34.1	0.6	114.6	6.4	75.4	1.8	7.7	7.5	7.8
9 23 2004	50	BMc	6.3	1.03	358	358	2.5%	27.3	0.4	91.0	8.6	64.1	1.3	3.9	4.2	3.7
9 23 2004	38	BMd	6.1	0.97	683	614	-2.7%	24.7	0.4	185.4	0.8	103.2	1.3	5.9	6.6	19.3
9 23 2004	39	BMe	5.9	1.05	810	737	-2.0%	11.0	0.3	238.6	2.1	114.5	4.5	13.3	11.2	1.3
9 23 2004	40	BMf	6.4	5.91	135	126	-1.0%	13.1	0.4	27.1	6.8	23.2	0.8	0.7	0.5	BDL
9 23 2004	41	BMg	6.3	5.45	113	101	-1.9%	8.9	0.6	23.0	4.5	16.4	0.8	1.0	1.0	BDL
9 23 2004	42	BMh	6.0	5.40	131	116	-0.3%	6.5	0.3	29.1	3.4	17.9	1.2	1.5	1.4	BDL
9 23 2004	43	BN	6.5	1.01	445	NA	NA	31.2	0.0	NS	NS	68.1	1.6	4.8	4.3	9.9
9 23 2004	18	BO	6.0	4.35	73	63	-1.5%	5.4	0.4	14.0	4.9	10.1	1.0	0.8	0.8	BDL
9 23 2004	25	BOa	6.6	1.77	393	350	4.4%	73.8	0.4	67.9	7.8	66.2	1.2	5.2	4.5	4.5
9 23 2004	26	BOb	6.3	1.01	1083	NA	NA	73.4	NS	NS	NS	150.5	2.4	22.0	18.9	10.8
9 23 2004	24	BOc	6.5	1.03	442	NA	NA	32.4	NS	NS	NS	71.5	1.1	6.3	5.1	3.2
9 23 2004	23	BOd	6.2	1.00	726	633	4.1%	54.1	0.6	165.7	11.3	117.1	1.8	11.2	7.6	7.0
9 23 2004	20	BOe	6.0	1.02	680	606	2.6%	20.4	0.3	175.0	6.2	100.3	1.5	11.5	9.1	12.6
9 23 2004	19	BOf	5.9	0.95	383	343	9.7%	16.5	0.6	87.0	4.7	67.0	0.9	4.3	3.5	3.6
9 23 2004	37	BOg	6.4	0.97	387	365	1.5%	33.2	0.5	87.7	9.3	64.3	1.2	4.7	3.4	9.5
9 23 2004	27	BOh	6.4	0.95	630	569	-0.8%	37.5	0.3	155.6	11.7	102.3	0.8	6.6	4.6	13.5
9 23 2004	21	BP	6.3	1.05	729	630	4.3%	58.6	0.3	162.5	13.3	121.2	1.8	9.8	6.6	5.7
9 23 2004	22	BP	6.3	1.05	729	634	3.7%	61.4	0.3	163.7	13.6	120.1	1.7	10.9	6.7	5.5
9 23 2004	17	BQ	6.3	7.22	59	57	-6.3%	8.5	0.6	9.2	5.7	8.1	0.9	0.5	0.8	BDL
9 23 2004	29	BR	6.7	3.57	75	74	-13.1%	15.3	0.5	13.7	4.9	10.2	0.9	0.8	0.9	BDL
9 23 2004	84	BS	7.0	1.83	73	69	-13.8%	15.9	0.4	11.9	4.7	8.8	0.8	1.2	0.9	BDL
9 23 2004	94	BTa	6.8	0.24	684	594	3.7%	121.6	0.4	136.2	0.6	140.0	1.1	1.8	1.1	1.0
9 23 2004	62	BTb	6.6	0.25	679	591	3.6%	98.6	0.6	144.3	0.8	131.8	1.2	3.4	2.6	2.5

Plymouth Well Sampling Summary

Updated 38519.0 SVK

NM - not measured; NS - not sampled; BDL - below detection limit; DND - did not detect; if listed as 0, below 1, rounded, but above detection limit

Sample Date	Sample ID	Borehole ID	pH	DO (mg/L)	Measured Conductivity (mS/cm)	Calc Conductivity (mS/cm)	Net Charge	HCO_3^- Conc. (mg/L)	Acetate Conc. (mg/L)	Cl^- Conc. (mg/L)	SO_4^{-2} Conc. (mg/L)	Na^+ Conc. (mg/L)	K^+ Conc. (mg/L)	Ca^{+2} Conc. (mg/L)	Mg^{+2} Conc. (mg/L)	Fe^{+2} Conc. (mg/L)
9/23/2004	64	BTc	6.8	0.24	678	NA	NA	96.5	0.4	151.9	0.5	BDL	BDL	BDL	BDL	5.0
9/23/2004	97	BTd	6.6	0.22	63	560	4.4%	68.0	0.3	144.9	0.9	107.1	1.0	7.5	7.8	3.2
9/23/2004	65	BTe	7.0	0.22	532	482	1.9%	39.3	1.0	110.9	3.3	55.9	1.0	5.0	5.1	2.7
9/23/2004	66	BTe	7.0	0.22	532	480	1.3%	89.6	0.5	111.2	3.3	93.8	1.0	5.3	5.3	2.6
9/23/2004	63	BTf	6.6	0.23	844	738	2.0%	117.6	0.6	183.2	2.3	142.9	1.4	9.8	10.2	5.1
9/23/2004	57	BTg	6.6	0.23	1052	934	1.5%	125.0	0.3	255.9	0.8	172.7	1.7	16.0	15.7	7.1
9/23/2004	53	BTh	6.7	0.23	405	357	5.9%	79.1	0.6	71.1	5.8	77.8	0.8	3.5	3.5	1.8
9/23/2004	59	BTi	7.1	0.31	157	139	-9.0%	38.5	0.3	24.0	0.9	15.1	0.3	3.1	3.6	6.4
9/23/2004	55	BTj	7.0	0.33	320	297	1.0%	53.9	0.2	63.5	4.2	55.9	0.5	3.1	2.8	4.6
9/23/2004	dry	BTk	NM	NM	NM	NM	NM	NS	NS	NS	NS	0.0	0.0	0.0	0.0	NS
9/23/2004	59	BU	6.4	0.85	938	817	0.6%	75.7	0.3	241.2	0.7	157.5	1.4	12.7	7.9	BDL
9/23/2004	82	BX	7.2	0.94	116	235	60.2%	35.3	0.6	11.2	3.9	66.7	1.3	9.9	6.6	1.3
9/23/2004	79	BY	6.8	1.07	130	111	1.6%	30.6	0.7	13.5	7.5	18.6	0.7	1.8	2.0	BDL
9/23/2004	95	BZ	6.9	1.44	330	310	-0.8%	44.6	0.3	70.6	6.1	51.4	1.1	4.4	4.0	6.8
9/23/2004	65	CA	7.0	6.87	270	258	-0.9%	54.6	1.4	43.6	17.5	46.8	1.0	2.7	3.3	BDL
9/23/2004	56	CB	6.4	2.39	299	280	1.1%	21.7	0.4	71.4	7.6	49.9	1.3	3.3	2.7	BDL
9/23/2004	70	CC	6.9	5.22	59	94	-9.1%	15.7	0.7	19.8	4.1	12.8	1.0	1.4	1.3	BDL
9/23/2004	67	CD	6.9	1.58	423	385	-1.5%	63.6	0.3	84.5	10.4	65.8	1.2	4.9	4.9	8.7
9/23/2004	dry	East Weir	NM	NM	NM	NM	NM	NS	NS	NS	NS	0.0	0.0	0.0	0.0	NS
9/23/2004	1	Field blank 1	8.2	NM	16	20	-4.1%	BDL	0.5	5.2	0.3	2.7	1.1	0.1	0.0	BDL
9/23/2004	28	ST	6.3	2.40	551	534	0.1%	25.6	0.5	156.1	8.2	89.8	2.5	7.6	8.0	BDL
9/23/2004	dry	UB101	NM	NM	NM	NM	NM	NS	NS	NS	NS	0.0	0.0	0.0	0.0	NS
9/23/2004	15	UB102	5.7	10.66	33	49	2.5%	3.0	0.5	7.7	6.0	7.7	0.9	0.6	0.4	BDL
9/23/2004	9	UB201	5.1	10.74	438	394	1.2%	0.7	0.3	119.0	6.4	73.5	1.3	4.5	1.7	BDL
9/23/2004	7	UB202	5.4	10.21	179	162	1.5%	1.5	0.4	43.9	4.8	27.0	1.2	2.1	1.2	BDL
9/23/2004	8	UB203	5.7	9.62	61	54	5.2%	1.9	0.6	10.2	4.9	8.2	1.0	0.8	0.6	BDL
9/23/2004	10	UB204	5.6	9.31	65	NA	NA	1.9	NS	NS	NS	8.3	0.8	1.0	0.8	BDL
9/23/2004	11	UB204	5.6	9.31	65	55	5.3%	1.7	0.4	11.1	4.4	6.7	0.8	1.5	1.2	BDL
9/23/2004	12	UB205	5.4	7.65	120	101	9.1%	2.6	0.8	22.6	4.6	17.6	1.0	2.4	2.5	BDL
9/23/2004	13	UC101	5.7	10.49	56	52	7.2%	BDL	0.5	9.2	6.5	8.2	0.9	0.7	0.6	BDL
9/23/2004	14	UC102	5.6	9.90	54	48	6.6%	2.5	0.4	6.5	6.4	6.5	1.9	0.9	0.6	BDL
9/23/2004	2	UC201	6.9	10.00	499	478	2.6%	10.3	0.3	123.4	8.1	83.6	1.6	4.1	2.0	BDL
9/23/2004	3	UC202	7.2	9.65	159	140	-4.3%	12.7	0.3	31.8	8.2	24.8	1.4	0.6	0.4	BDL
9/23/2004	4	UC203	6.8	8.00	80	80	-12.9%	18.7	0.3	13.2	5.5	9.6	3.2	1.1	0.8	BDL
9/23/2004	5	UC204	6.6	9.85	84	80	-5.8%	13.8	0.4	11.7	8.9	9.8	4.0	0.8	0.7	BDL
9/23/2004	6	UC205	6.3	6.24	101	94	-5.8%	19.6	0.3	10.4	12.3	9.5	5.0	1.9	1.8	BDL
9/23/2004	45	West Weir	6.8	7.07	176	154	4.1%	40.1	0.3	22.4	5.3	19.8	0.9	9.6	2.0	0.8

APPENDIX C
November 2002 – September 2004 PCP Data

AT pcp

	A	B	C	D	E	F	G	H	I	J	K
number	1	2	3	4	5	6	7	8	9	10	11
	Point Location (m msl)										
Date	7	5	5	4	3	3	2	1	-1	-2	-4
11/12/2002	394	1881	185	18447	131	122	123	131	126	127	214
12/17/2002	232	2362	272	18490	120	127	144	152	142	145	156
1/21/2003	775	2532	294	20074	126	132	139	168	123	119	152
2/20/2003	304	2866	276	19711	477	133	144	131	125	27	95
3/10/2003	698	3220	11968	18896	1701	1886	793	215	129	98	118
3/18/2003	320	2708	1107	19211	790	197	192	150	118	94	132
4/23/2003	4831	3200	251	205	196	166	162	144	107	93	125
5/21/2003	898	2837	1611	20581	629	516	395	171	99	111	111
6/3/2003	500	6696	2621	22765	1202	714	199	170	102	118	--
6/15/2003	521	7114	1835	2422	439	1806	172	169	111	126	132
7/1/2003	1349	6462	926	25116	1293	446	145	143	127	141	136
7/10/2003	1186	5472	949	23748	279	189	129	139	122	124	130
7/16/2003	1204	5392	536	23119	269	130	126	137	123	117	131
7/20/2003	988	5663	441	22373	195	121	131	181	115	112	128
7/29/2003	714	2784	638	20957	504	119	128	186	101	101	128
8/26/2003	677	3619	896	19213	483	582	541	302	109	101	98
9/18/2003	816	3101	517	15800	529	420	482	166	116	92	98
10/16/2003	440	2726	435	14377	617	340	183	168	146	90	82
10/30/2003	249	2688	696	14718	442	281	172	173	176	96	73
11/11/2003	333	1840	272	15883	196	115	98	130	163	92	84
12/4/2003	246	2172	189	17391	91	103	114	130	119	73	80
12/18/2003	258	2167	281	18084	91	86	104	117	127	75	84
1/6/2004	273	2196	214	16954	85	105	100	136	107	84	79
1/23/2004	14990	24681	218	17511	90	91	103	167	101	83	89
2/1/2004	6860	4292	590	16927	137	109	124	176	122	98	94
2/8/2004	2099	1844	233	8646	86	96	105	145	65	47	61
2/16/2004	13352	10051	973	18538	1130	948	123	152	116	78	121
2/29/2004	5130	2939	524	18553	453	140	142	163	102	102	99
3/7/2004	2360	2800	465	19011	230	140	127	172	109	100	103
3/12/2004	3182	2724	347	18751	221	135	125	165	103	97	104
3/21/3004	2305	2774	259	19058	172	133	172	163	106	91	109
3/30/2004	863	2418	216	17353	141	112	115	151	91	85	80
4/4/2004	522	2655	253	19105	165	123	124	170	108	93	88
4/10/2004	682	2857	270	19000	169	128	135	188	111	99	99
4/20/2004	1008	2957	460	2061	203	94	110	498	71	74	67
4/30/2004	902	5440	1773	21823	223	1298	1857	716	118	102	106
5/9/2004	648	5440	1032	22084	256	1291	2075	331	129	134	242
5/16/2004	777	6156	1822	25807	601	2543	3696	241	118	104	194
5/25/2004	1097	8866	2178	2695	566	4229	2460	153	118	102	110
5/30/2004	656	5361	1032	26542	664	1987	2704	144	111	104	112
6/4/2004	799	5630	690	27221	392	1794	1281	137	110	107	103
6/14/2004	1926	7182	571	29175	583	412	564	136	126	130	109
6/22/2004	1792	5456	716	28536	585	274	351	130	131	139	118
7/7/2004	1056	3140	423	25769	252	250	189	111	126	147	99
7/13/2004	1016	473	488	26011	267	236	207	113	132	153	99
7/19/2004	1051	2857	349	24039	247	235	204	116	141	163	96
7/28/2004	846	2783	479	23809	228	220	198	115	157	138	93
8/3/2004	1037	2865	612	26755	247	251	217	161	180	133	109
8/12/2004	1173	2699	462	22522	312	224	187	316	178	113	93
8/20/2004	675	5919	646	21105	4221	219	192	145	159	117	91
9/3/2004	1435	5064	844	28697	287	1139	844	346	591	156	106
9/19/2004	502	3139	656	19072	567	426	211	409	186	109	97
10/9/2004	1078	3012	5154	18261	549	692	536	318	234	108	90
10/26/2004	772	3233	593	16125	544	462	444	418	225	111	107
11/6/2004	512	2634	428	17738	382	424	386	376	161	91	81
11/11/2004	670	2515	267	17947	433	357	248	306	122	88	90
11/21/2004	383	2101	269	17240	204	216	206	195	153	92	72
12/11/2004	323	2229	2984	19306	154	184	140	136	154	154	125
12/20/2004	433	2328	278	20607	225	170	175	143	151	182	166

BC pcp

	A	B	C	D	E	F	G	H	I	J	K

number	1	2	3	4	5	6	7	8	9	10	11
	Point Location (m msl)										
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11/12/2002	67	194	375	407	383	276	392	119	155	136	259
12/18/2002	n/a	86	169	147	185	956	143	889	87	114	139
1/21/2003	454	200	2059	2409	1893	1749	1994	1506	1814	2748	971
2/20/2003	1284	3115	3602	48	1787	3026	480	185	280	237	771
3/10/2003	1118	3864	1701	283	2583	3650	2074	2146	4304	6148	3718
3/18/2003	9248	5945	5861	640	1990	1660	989	1900	3115	2992	4094
4/23/2003	1380	413	610	892	5239	2922	1522	1022	853	1239	367
5/21/2003	1763	5255	7181	8404	3740	433	659	169	212	150	187
6/3/2003	1466	4758	2908	676	424	1219	652	200	180	140	172
6/15/2003	1693	2597	697	367	1171	542	787	703	192	123	182
7/1/2003	771	790	2408	1404	2512	2602	2668	2378	327	120	181
7/10/2003	760	1710	2108	1397	1184	2095	1537	233	173	108	179
7/16/2003	572	2022	1273	1292	1496	1166	664	199	158	110	196
7/20/2003	359	1233	1085	1356	1176	1277	522	194	142	101	196
7/29/2003	298	965	1172	1670	655	452	480	176	117	98	183
8/26/2003	731	992	466	1141	260	245	246	129	98	105	172
9/2/2003	654	582	416	389	270	232	429	308	108	102	174
9/18/2003	353	846	632	293	265	273	542	363	304	98	172
10/16/2003	798	1254	1088	442	393	283	458	165	123	138	189
10/30/2003	582	994	803	627	608	562	572	196	123	135	192
11/11/2003	444	812	761	767	448	373	862	174	142	122	183
12/4/2003	528	501	278	449	454	344	936	169	149	135	221
12/118/03	966	289	168	339	511	345	980	128	142	137	223
1/6/2004	373	191	2306	339	4249	5240	4107	4729	1787	2282	133
1/23/2004	466	4214	2678	4086	1514	610	1029	185	173	178	709
2/1/2004	1239	3689	4076	3459	865	331	871	260	112	117	160
2/8/2004	1265	3769	4128	3476	869	326	851	257	110	116	222
2/16/2004	1604	6330	5908	6541	5064	8018	4220	5486	8018	169	253
2/29/2004	1973	3069	4315	7300	4828	8820	12674	5418	8428	10233	9029
3/7/2004	1539	2442	3718	6035	6354	6977	3933	3631	4841	4550	9101
3/12/2004	1626	2923	4105	5840	3372	2023	4586	3964	4258	2829	6115
3/21/3004	1467	4293	1484	1752	2606	3337	3631	3631	1901	1240	2143
3/30/2004	897	33121	1524	1549	3074	2897	4538	3026	1577	3042	3699
4/4/2004	653	3696	1554	1178	3483	3074	3708	3399	1797	2243	2834
4/10/2004	818	2325	1706	1267	2944	2202	2729	2582	3699	4327	3418
4/20/2004	2083	5376	2955	4186	5700	5039	3769	2804	4971	5856	7033
4/30/2004	2572	5780	2353	3751	1352	887	1089	1172	1445	1383	3312
5/9/2004	2461	2992	1376	3106	900	1033	1449	5070	1700	3773	621
5/16/2004	1846	2565	1436	3040	2121	661	941	265	1523	1393	2855
5/25/2004	1772	1398	1862	3085	460	423	949	313	277	203	501
5/30/2004	1843	1273	1858	2759	489	464	879	261	222	195	419
6/4/2004	1967	1126	1725	1626	392	365	876	281	224	186	317
6/14/2004	1460	1231	1284	1131	1896	446	1128	392	246	203	336
6/22/2004	1298	1500	1145	1171	988	616	984	504	248	198	340
7/7/2004	880	1470	916	1145	2017	823	1685	1177	733	154	264
7/13/2004	1111	1521	1256	867	2449	1955	2553	1738	608	178	282
7/19/2004	1483	1461	1397	813	2439	1524	2244	2207	212	202	295
7/28/2004	1128	1441	1778	2484	1656	1356	925	270	226	210	275
8/3/2004	1098	1302	1632	2538	823	814	790	212	234	209	260
8/12/2004	1173	1080	1156	1954	664	447	839	217	228	205	262
8/20/2004	1115	1122	1259	974	1136	445	1022	207	214	195	279
9/3/2004	183	536	819	882	912	1122	1562	937	197	180	246
9/19/2004	335	177	371	342	1133	1138	1144	339	226	264	512
10/9/2004	32	230	380	1090	686	1053	1638	867	571	454	282
10/26/2004	744	162	323	860	870	925	6	334	450	608	357
11/6/2004	783	145	375	430	654	484	713	405	459	340	246
11/11/2004	698	131	560	734	677	494	717	529	367	295	300
11/21/2004	915	108	753	754	600	570	1000	459	392	333	259
12/11/2004	851	154	271	761	3569	572	774	318	268	196	256
12/20/2004	680	284	333	446	731	567	815	287	241	182	307
BM pcp											
	A	B	C	D	E	F	G	H	I	J	K
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Point Location (m msl)

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11/12/2002	73	86	804	543	383	276	560	511	517	130	144
12/18/2002	n/a	1223	1406	1632	1251	1912	1931	2528	2587	2556	186
1/21/2003	487	1532	1235	1835	516	344	462	348	644	179	212
2/20/2003	1690	374	1231	1613	1430	424	420	1075	596	145	160
3/10/2003	1327	386	882	756	567	487	549	736	922	1045	496
3/18/2003	1103	310	847	832	632	461	587	810	872	1512	630
4/23/2003	3796	5505	5424	2279	3602	1948	2072	1437	1168	248	183
5/21/2003	1170	438	1209	1732	2346	1366	2091	743	782	163	117
6/3/2003	1399	2820	1508	1743	1750	2855	4631	2532	1387	487	140
6/15/2003	716	1494	4404	2569	3658	2529	2147	2108	1741	167	172
7/1/2003	642	1364	1816	3029	3509	3420	3187	1390	1672	162	157
7/10/2003	791	1231	2284	3842	3830	3353	1257	696	780	134	162
7/16/2003	843	1719	2915	3298	3264	1878	1129	583	755	131	124
7/20/2003	1078	1799	3186	3051	2957	766	1273	369	674	128	128
7/29/2003	1346	1619	2963	2358	2030	817	480	1107	519	111	118
8/26/2003	974	1021	1911	1261	1328	1594	1107	1171	474	157	114
9/2/2003	600	1048	1931	1467	1231	1070	1165	1110	587	143	118
9/18/2003	653	423	1322	1492	1706	901	1023	1392	791	246	123
10/16/2003	110	600	1468	1548	1122	793	1316	985	468	300	182
10/30/2003	127	97	589	545	498	1125	1030	1329	731	301	167
11/11/2003	178	1137	544	657	1007	774	747	1179	652	245	161
12/4/2003	109	139	556	1094	738	574	410	474	416	135	172
12/18/2003	1159	2254	2244	6782	4827	2012	519	467	355	149	151
1/6/2004	808	2369	4780	11868	9064	640	352	414	357	120	146
1/23/2004	8994	4214	5240	1576	815	335	278	448	280	136	177
2/1/2004	7889	889	2359	1751	582	364	1815	478	387	154	153
2/8/2004	1961	2797	5327	1729	1182	1625	901	148	141	85	99
2/16/2004	1616	1319	1769	2028	3476	1897	2053	3219	3485	2259	1938
2/29/2004	5524	1437	5240	10950	8751	2464	3319	8127	5117	3311	5117
3/7/2004	2462	1107	1704	3621	635	940	726	1634	4236	231	1365
3/12/2004	16262	2823	1832	4304	1931	889	520	518	1460	207	205
3/21/2004	4191	18164	11369	11066	10117	9101	696	424	815	333	175
3/30/2004	4831	1590	1143	868	523	935	6051	393	728	189	148
4/4/2004	653	1983	3562	3821	3800	1137	2472	2720	5268	1932	170
4/10/2004	1125	864	2769	3483	1504	3363	3986	6763	7397	2163	2113
4/20/2004	1176	2218	1708	2222	1773	756	565	561	1740	247	1529
4/30/2004	1069	952	2864	2932	1149	760	576	651	1215	198	162
5/9/2004	1166	1360	2408	2761	1627	678	790	608	1224	333	152
5/16/2004	1392	1231	2102	1909	1980	1189	874	894	1246	487	296
5/25/2004	1772	921	1546	4255	4596	2467	3162	1253	2630	1763	1437
5/30/2004	1281	1240	1823	1711	4540	2815	3177	3234	2700	3203	230
6/4/2004	861	1259	2726	2510	4282	3255	2224	2401	2718	2890	296
6/14/2004	1305	1881	4995	4376	5106	2161	2820	2640	2312	2283	197
6/22/2004	1792	1910	4295	4390	3000	1026	1651	1549	1896	316	155
7/7/2004	1173	902	2115	2756	1080	757	539	623	1048	203	127
7/13/2004	1588	811	1849	1842	1116	607	552	496	1074	192	141
7/19/2004	989	1262	1607	1414	919	530	544	385	1025	184	135
7/28/2004	1441	1113	1163	1449	759	452	462	1014	1026	206	131
8/3/2004	1098	586	1462	1509	755	521	494	336	1119	212	171
8/12/2004	616	1143	1255	1524	797	543	517	316	991	192	149
8/20/2004	111	187	1227	1688	1169	1175	1022	581	974	208	117
9/3/2004	343	357	394	700	1247	1558	1031	968	1107	367	115
9/19/2004	112	143	1199	683	680	973	1084	1284	929	546	228
10/9/2004	105	104	705	954	659	1023	1072	578	1141	681	242
10/26/2004	343	162	808	1881	1360	979	1167	835	1350	359	185
11/6/2004	114	210	803	914	1145	1029	772	578	1147	425	308
11/11/2004	167	198	1441	1795	866	824	607	446	961	413	480
11/21/2004	429	43	140	216	191	222	82	17	290	19	28
12/11/2004	141	143	515	680	302	421	417	693	911	337	156
12/20/2004	105	165	667	835	506	850	1106	688	1147	363	246
BT pcp	A	B	C	D	E	F	G	H	I	J	K
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11/12/2002	--	--	--	--	219	387	448	284	287	296	301
12/18/2002	--	--	--	--	251	193	222	157	244	250	242
1/21/2003	--	--	--	--	1434	1377	1734	1854	585	358	243
2/20/2003	135	374	2101	2628	2085	2299	1861	1971	2055	1126	210
3/10/2003	112	1739	1890	630	290	547	--	1656	430	430	186
3/18/2003	--	1750	1954	640	237	135	19	1122	305	265	227
4/23/2003	1587	1583	1119	991	753	1266	680	1277	1579	1301	1590
5/21/2003	847	420	596	2264	2159	999	1350	1098	3001	3316	3427
6/3/2003	949	1163	4308	1352	1237	1776	1852	2415	2576	5357	2427
6/15/2003	684	3913	2202	1835	5488	5419	1432	5341	1010	5797	3633
7/1/2003	1252	2136	1834	1847	1404	2825	2890	3439	1018	2538	1364
7/10/2003	1065	1642	1265	2061	1671	1641	1432	1915	1356	470	308
7/16/2003	903	1382	1273	1564	1700	1360	1329	1681	1372	757	182
7/20/2003	749	933	1356	1525	1411	1469	1567	1139	1752	439	162
7/29/2003	936	894	1758	1244	1375	1413	1761	1140	1393	202	138
8/26/2003	379	642	1404	1681	1811	1104	1353	1295	1454	1598	191
9/2/2003	327	582	1337	1497	690	795	552	678	742	180	170
9/18/2003	272	564	1150	878	294	192	301	175	207	197	160
10/16/2003	385	545	789	553	393	198	830	319	468	600	182
10/30/2003	554	538	803	709	332	337	286	231	585	301	182
11/11/2003	417	568	653	548	420	315	402	442	282	177	170
12/4/2003	264	223	639	617	653	373	293	178	238	245	123
12/18/2003	212	520	785	509	341	345	346	233	236	239	181
1/6/2004	217	260	309	509	238	239	264	177	256	276	152
1/23/2004	147	154	210	700	524	262	297	215	1430	290	142
2/1/2004	178	159	242	1167	1718	455	938	1374	804	533	118
2/8/2004	114	148	902	1960	2421	1655	2852	1241	1265	761	119
2/16/2004	63	151	2418	869	927	771	528	527	1220	246	170
2/29/2004	122	849	2281	3042	2324	5779	664	662	331	271	132
3/7/2004	123	456	2727	634	1240	758	484	260	284	255	137
3/12/2004	138	498	2779	1998	3986	429	294	198	268	213	119
3/21/3004	164	330	1042	1230	399	133	242	142	211	115	66
3/30/2004	166	1192	1746	1735	430	754	303	188	1668	304	1233
4/4/2004	46	1411	1425	2229	1932	1691	1082	618	1859	654	3086
4/10/2004	198	797	966	1963	2882	3669	705	1721	2959	5254	3045
4/20/2004	175	840	1642	2962	3800	3779	4397	4362	3107	6164	3058
4/30/2004	127	884	3001	3751	2974	3483	4483	4558	6239	6257	4968
5/9/2004	246	1258	2683	5176	3461	4197	3952	3718	5100	5831	2761
5/16/2004	201	1778	3223	5303	3889	4293	4368	4128	4845	6964	5287
5/25/2004	253	1910	3514	3546	3040	4229	4568	3134	3461	5424	6013
5/30/2004	294	1876	2649	3248	3492	2418	3718	3062	3080	5223	5239
6/4/2004	307	1524	2346	2828	2890	3255	4718	3773	2890	2890	2030
6/14/2004	214	1676	2426	2808	2699	2195	3877	4638	2746	2682	1203
6/22/2004	235	818	1360	2561	2122	1915	1195	3601	3647	2789	1330
7/7/2004	1056	5679	1692	1145	303	217	1011	1661	4540	349	204
7/13/2004	1143	744	1082	578	277	249	897	245	358	306	204
7/19/2004	1051	797	978	990	424	258	476	231	311	277	199
7/28/2004	1034	982	923	897	621	387	330	237	280	265	186
8/3/2004	976	1107	714	1132	823	781	329	292	441	171	178
8/12/2004	1115	1048	826	1358	1594	671	484	659	859	242	172
8/20/2004	880	872	904	1461	1688	699	575	420	942	214	162
9/3/2004	744	685	1183	912	760	305	375	656	369	336	364
9/19/2004	614	742	799	769	623	1125	1565	1197	987	1437	1309
10/9/2004	129	257	543	818	741	963	12	693	856	312	211
10/26/2004	515	269	323	860	870	925	6	334	450	608	357
11/6/2004	277	177	669	753	709	726	683	405	315	397	252
11/11/2004	307	187	427	1033	812	631	6	362	339	442	240
11/21/2004	343	216	376	339	698	781	9	516	511	583	184
12/11/2004	258	187	233	707	659	542	298	405	512	421	234
12/20/2004	309	170	256	613	450	510	na	344	483	484	246
BU pcp											
	A	B	C	D	E	F	G	H	I	J	K
number	1	2	3	4	5	6	7	8	9	10	11
	Point Location (m msl)										

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11/12/2002	506	269	590	597	301	304	280	227	201	207	181
12/18/2002	263	191	196	326	301	276	222	169	159	163	124
1/21/2003	354	333	253	229	184	172	162	151	170	167	182
2/20/2003	270	249	300	179	238	182	300	299	357	237	237
3/18/2003	1718	1587	447	421	417	352	245	146	160	104	99
4/23/2003	1518	310	3322	528	720	584	486	479	442	465	703
5/21/2003	1559	823	788	686	1802	1799	1301	1324	1421	521	779
6/3/2003	383	493	467	4624	5303	5571	2607	3131	2180	3020	5109
6/15/2003	521	213	3009	6239	2927	4335	4653	1757	1741	4774	3963
7/1/2003	803	2980	852	2216	2955	1933	2038	988	982	197	218
7/10/2003	1095	250	387	203	279	311	325	275	217	141	166
7/16/2003	2287	2123	208	184	184	194	239	220	196	138	162
7/20/2003	1527	220	176	183	168	169	189	181	179	128	155
7/29/2003	234	181	179	180	167	170	166	160	158	124	157
8/26/2003	208	175	173	186	166	185	203	160	134	123	136
9/2/2003	818	180	169	192	168	183	172	142	117	99	112
9/18/2003	761	1043	172	193	182	180	169	151	143	117	123
10/16/2003	440	763	598	608	617	850	801	695	468	240	182
10/30/2003	610	753	615	627	719	478	944	289	234	181	152
11/11/2003	611	704	843	356	336	344	175	144	261	162	155
12/4/2003	645	668	833	505	454	344	293	160	149	153	148
12/18/2003	837	722	449	283	199	287	173	175	148	119	121
1/6/2004	715	722	394	396	232	180	158	136	161	132	140
1/23/2004	866	12	437	409	349	293	224	197	149	145	118
2/1/2004	960	736	560	525	210	203	194	149	125	145	130
2/8/2004	1032	646	466	216	184	175	153	121	103	117	108
2/16/2004	878	565	383	348	203	267	197	176	131	136	145
2/29/2004	947	555	493	228	181	173	172	451	147	120	126
3/7/2004	287	488	403	513	424	170	179	166	333	394	394
3/12/2004	269	465	568	676	613	184	183	152	201	249	138
3/21/3004	594	396	505	523	858	334	194	185	422	166	115
3/30/2004	414	596	349	372	191	190	182	157	158	128	114
4/4/2004	104	5376	71	828	177	172	148	145	136	125	110
4/10/2004	580	299	193	196	194	177	187	157	136	114	404
4/20/2004	470	269	296	322	285	441	283	218	280	370	734
4/30/2004	501	299	198	225	1927	697	768	781	1018	1416	2650
5/9/2004	253	510	1858	2830	2838	3874	2865	2805	2686	1852	4141
5/16/2004	389	821	490	1662	2015	2279	2487	3096	3046	3134	4582
5/25/2004	760	1841	1476	3404	2050	1974	2460	2228	2111	2644	4343
5/30/2004	531	2010	2099	1886	1187	1590	1690	1720	1592	2507	4889
6/4/2004	1107	1590	2001	919	963	1196	944	926	1548	2167	4472
6/14/2004	1367	1300	428	365	314	281	328	250	361	1123	5470
6/22/2004	1483	1057	429	278	249	239	225	202	212	264	244
7/7/2004	704	601	458	215	216	2173	195	163	157	290	197
7/13/2004	730	473	349	242	216	229	169	177	172	221	204
7/19/2004	680	399	279	226	212	219	150	168	170	177	178
7/28/2004	689	314	267	217	193	181	152	169	164	179	172
8/3/2004	671	270	265	206	192	195	158	168	163	192	188
8/12/2004	763	273	284	464	166	447	168	168	175	199	212
8/20/2004	939	436	271	1169	455	381	415	168	162	247	227
9/3/2004	801	1013	758	1217	760	748	594	562	646	153	152
9/19/2004	335	799	970	1309	1076	1521	873	350	668	805	1822
10/9/2004	539	356	651	709	631	783	1221	982	1141	1193	1184
10/26/2004	515	377	485	672	816	707	833	668	619	608	655
11/6/2004	451	806	482	806	954	877	862	347	430	227	224
11/11/2004	363	455	480	1088	487	467	386	501	339	206	210
11/21/2004	406	296	280	754	872	901	529	516	267	253	215
12/11/2004	411	330	353	870	659	542	566	347	222	227	201
12/20/2004	556	398	667	668	450	397	408	287	241	254	277
BY pcp											
	A	B	C	D	E	F	G	H	I	J	K
number	1	2	3	4	5	6	7	8	9	10	11
	Point Location (m msl)										
Date											

11/12/2002	Destroyed by Vandals.. No Readings on 11/12/02										
12/18/2003	No Readings										
1/21/2003	No Readings										
2/20/2003	372	312	270	299	18	333	264	358	298	296	243
3/18/2003	1111	1704	2318	1910	1926	1409	64	1520	887	646	682
4/23/2003	3451	4817	3051	2246	2489	3182	159	1628	2116	1394	202
5/21/2003	780	858	771	1801	561	966	79	710	543	1326	2523
6/3/2003	3664	740	1472	2454	2263	2925	617	433	258	325	894
7/10/2003	912	2394	703	698	731	1083	419	289	227	225	195
7/16/2003	783	472	1273	292	265	288	27	295	247	241	688
7/20/2003	1317	666	312	542	1949	2363	39	80	270	277	243
7/29/2003	1551	1263	1302	982	3045	3518	61	391	253	274	272
8/26/2003	206	228	197	240	199	307	18	253	243	246	246
9/2/2003	172	192	178	189	174	208	15	222	198	186	205
9/18/2003	109	169	172	176	129	186	18	206	176	184	126
10/16/2003	633	382	598	470	337	567	34	579	410	600	292
10/30/2003	471	806	321	436	442	534	29	636	351	241	547
11/11/2003	833	541	489	493	518	531	20	531	296	367	527
12/4/2003	675	724	667	241	239	235	23	237	238	183	184
12/18/2003	612	578	281	170	170	230	58	263	177	149	0
1/6/2004	292	202	197	209	181	221	12	225	179	174	170
1/23/2004	253	241	227	251	215	250	15	215	176	184	183
2/1/2004	281	276	245	225	198	231	15	209	173	199	183
2/8/2004	282	243	186	202	179	226	15	207	159	173	175
2/16/2004	457	289	271	278	249	249	18	205	183	174	242
2/29/2004	324	281	256	335	278	335	18	250	217	184	184
3/7/2004	294	277	229	272	266	455	18	242	206	197	182
3/12/2004	255	199	202	267	258	429	18	262	201	198	183
3/21/3004	384	320	243	255	205	224	15	212	178	182	175
3/30/2004	262	325	254	310	197	223	12	163	133	140	129
4/4/2004	327	403	324	541	602	523	15	266	167	193	183
4/10/2004	375	498	483	228	376	428	15	369	339	235	171
4/20/2004	773	941	1116	1964	2217	2331	101	2368	1740	1726	1529
4/30/2004	735	2108	409	375	473	266	90	1107	204	296	1722
5/9/2004	1360	544	241	380	1108	839	46	676	850	960	759
5/16/2004	648	547	736	1273	990	859	40	482	485	1741	197
5/25/2004	928	1603	2108	2695	2333	3242	53	2820	4499	4407	187
5/30/2004	1624	2814	3131	4540	4191	5299	139	5505	4499	3830	199
6/4/2004	2029	3180	3313	4949	3568	2790	148	5488	4128	3784	310
6/14/2004	2299	2839	2783	3428	3246	2264	102	2890	2673	3117	1896
6/22/2004	1978	2319	1861	1829	2195	2941	134	4250	3647	4404	3694
7/7/2004	1525	601	352	351	432	724	67	1315	1816	2654	5639
7/13/2004	921	473	307	289	245	506	45	1028	1002	2774	5639
7/19/2004	433	332	251	276	255	291	34	631	566	3050	1956
7/28/2004	301	262	219	276	238	252	26	294	410	963	1651
8/3/2004	366	287	211	250	237	241	20	255	244	581	2497
8/12/2004	440	762	221	245	226	268	26	250	211	331	1921
8/20/2004	704	293	213	227	201	241	19	232	208	260	114
9/3/2004	830	357	1456	1703	1186	1495	469	750	676	550	425
9/19/2004	257	274	2197	1765	1076	1551	24	438	348	216	285
10/9/2004	404	548	1465	1526	1647	1655	48	838	856	426	451
10/26/2004	343	431	1482	1183	1360	1523	111	1114	844	664	417
11/6/2004	421	511	1391	1209	1008	1210	39	925	774	906	0
11/11/2004	391	562	1014	925	622	769	55	780	961	1120	390
11/21/2004	400	528	430	593	600	901	32	860	795	1222	605
12/11/2004	528	440	543	707	714	993	33	780	512	393	696
12/20/2004	587	454	528	557	675	906	175	860	543	303	430

APPENDIX D
November 2002 – September 2004 Spike Recovery Data

Plymouth Groundwater Quality Sampling Trip
12-Nov-02

Sample ID	Spike Volume (ml)	Sample Volume (ml) (Total)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	Mg^{2+} Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)
Cation Std	1	10.00	0.00	AU	Well Conc	12	1	0	
					Spiking Soln	200	250	500	
					Recovered	29	52	59	
					Recovery	**95%**	**201%**	**117%**	
Anion Std	1	10.00	0.00	AU	Well Conc				12
					Spiking Soln				30
					Recovered				26
					Recovery				**186%**

Plymouth Groundwater Quality Sampling Trip
19-Dec-02

Sample ID	Spike Volume (ml)	Sample Volume (ml) (Total)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	Mg^{2+} Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)
Cation Std	1	10.00	0.00	AU	Well Conc	12	1	0	
					Spiking Soln	200	250	500	
					Recovered	30	49	59	
					Recovery	**97%**	**188%**	**116%**	
Anion Std	1	10.00	0.00	AU	Well Conc				12
					Spiking Soln				30
					Recovered				15
					Recovery				**109%**

Plymouth Groundwater Quality Sampling Trip
21-Jan-03

Sample ID	Spike Volume (ml)	Sample Volume (ml) (Total)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	Mg^{2+} Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)
	1	10.00	0.00	AU	Well Conc	10	3	2	
Cation Std					Spiking Soln	206	272	533	
					Recovered	33	30	60	
					Recovery	**112%**	**100%**	**108%**	
	1	10.00	0.00	AU	Well Conc				14
Anion Std					Spiking Soln				30
					Recovered				17
					Recovery				**109%**

Plymouth Groundwater Quality Sampling Trip
20-Feb-03

Sample ID	Spike Volume (ml)	Sample Volume (ml) (Total)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	Mg^{2+} Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)
	1	10.00	0.00	AU	Well Conc	237	22	29	
Cation Std					Spiking Soln	206	272	533	
					Recovered	238	45	78	
					Recovery	**102%**	**95%**	**97%**	
	1	10.00	0.00	AU	Well Conc				326
Anion Std					Spiking Soln				30
					Recovered				306
					Recovery				**103%**

Plymouth Groundwater Quality Sampling Trip
23-Apr-03

Sample	Spike	Sample	NaN_3	Well		Na^+	Mg^{2+}	Ca^{2+}	Cl^-

ID	Volume (ml)	Volume (ml) (Total)	Volume (ml)	ID		Conc. (mg/L)	Conc. (mg/L)	Conc. (mg/L)	Conc. (mg/L)
Cation Std	1	10.00	0.00	AU	Well Conc	9	2	2	
					Spiking Soln	206	272	533	
					Recovered	31	33	56	
					Recovery	**108%**	**113%**	**102%**	
Anion Std	1	10.00	0.00	AU	Well Conc				14
					Spiking Soln				30
					Recovered				15
					Recovery				**100%**

Plymouth Groundwater Quality Sampling Trip
15-Jun-03

Sample ID	Spike Volume (ml)	Sample Volume (ml) (Total)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	K^+ Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)
Cation Std	1	10.00	0.00	AU	Well Conc	9	1	2	
					Spiking Soln	201	503	506	
					Recovered	28	50	28	
					Recovery	**98%**	**97%**	**54%**	
Anion Std	1	10.00	0.00	AU	Well Conc				17
					Spiking Soln				30
					Recovered				18
					Recovery				**102%**

Plymouth Groundwater Quality Sampling Trip
18-Sep-03

Sample ID	Spike Volume (ml)	Sample Volume (ml) (Total)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	Mg^{2+} Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)

Cation Std	1	10.00	0.00	AB	Well Conc	57	10	6	113
					Spiking Soln	200	40	50	
					Recovered	70	14	11	
					Recovery	**98%**	**104%**	**100%**	
Anion Std	1	10.00	0.00	AB	Well Conc				113
					Spiking Soln				400
					Recovered				141
					Recovery				**100%**

Plymouth Groundwater Quality Sampling Trip
18-Sep-03

Sample ID	Spike Volume (ml)	Sample Volume (ml) (Total)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	Mg^{2+} Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)
Cation Std	1	10.00	0.00	BCf	Well Conc	100	9	12	118
					Spiking Soln	200	40	50	
					Recovered	110	14	19	
					Recovery	**100%**	**121%**	**120%**	
Anion Std	1	10.00	0.00	BCf	Well Conc	100	9	12	118
					Spiking Soln				400
					Recovered				149
					Recovery				**102%**

Plymouth Groundwater Quality Sampling Trip
30-Oct-03

Sample ID	Spike Volume (ml)	Sample Volume (ml) (Total)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	Mg^{2+} Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)
	1	10.00	0.00	AA	Well Conc	85	12	8	

Sample ID	Spike Volume (ml)	Sample Volume (ml) (Total)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	Mg^{2+} Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)
Cation Std					Spiking Soln	205	39	49	
					Recovered	96	15	13	
					Recovery	**98%**	**102%**	**102%**	
Anion Std	1	10.00	0.00	AA	Well Conc				165
					Spiking Soln				410
					Recovered				188
					Recovery				**99%**

Plymouth Groundwater Quality Sampling Trip
30-Oct-03

Sample ID	Spike Volume (ml)	Sample Volume (ml) (Total)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	Mg^{2+} Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)
Cation Std	1	10.00	0.00	BTe	Well Conc	41	8	12	
					Spiking Soln	205	39	49	
					Recovered	55	11	16	
					Recovery	**97%**	**102%**	**102%**	
Anion Std	1	10.00	0.00	BTe	Well Conc				76
					Spiking Soln				410
					Recovered				108
					Recovery				**99%**

Plymouth Groundwater Quality Sampling Trip
30-Oct-03

Sample ID	Spike Volume (ml)	Sample Volume (ml) (Total)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	Mg^{2+} Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)
Cation Std	1	10.00	0.00	BU	Well Conc	31	1	1	
					Spiking Soln	205	39	49	
					Recovered	47	5	6	
					Recovery	**97%**	**106%**	**103%**	

	1	10.00	0.00	BU	Well Conc				25
Anion Std					Spiking Soln				410
					Recovered				68
					Recovery				**106%**

Plymouth Groundwater Quality Sampling Trip
11-Nov-03

Sample ID	Spike Volume (ml)	Sample Volume (ml) (Total)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	Mg^{2+} Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)
	1	10.00	0.00	AS	Well Conc	19	1	1	
Cation Std					Spiking Soln	208	40	51	
					Recovered	36	5	6	
					Recovery	**94%**	**105%**	**107%**	
	1	10.00	0.00	AS	Well Conc				8
Anion Std					Spiking Soln				423
					Recovered				47
					Recovery				**94%**

Plymouth Groundwater Quality Sampling Trip
11-Nov-03

Sample ID	Spike Volume (ml)	Sample Volume (ml) (Total)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	Mg^{2+} Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)
	1	10.00	0.00	CB	Well Conc	43	5	6	
Cation Std					Spiking Soln	208	40	51	
					Recovered	57	9	11	
					Recovery	**96%**	**103%**	**103%**	
	1	10.00	0.00	CB	Well Conc				66
Anion Std					Spiking Soln				423
					Recovered				100

					Recovery				**98%**

Plymouth Groundwater Quality Sampling Trip
11-Nov-03

Sample ID	Spike Volume (ml)	Sample Volume (ml) (Total)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	Mg^{2+} Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)
	1	10.00	0.00	BTd	Well Conc	49	10	13	
Cation Std					Spiking Soln	208	40	51	
					Recovered	62	13	17	
					Recovery	**95%**	**100%**	**101%**	
	1	10.00	0.00	BTd	Well Conc				92
Anion Std					Spiking Soln				423
					Recovered				124
					Recovery				**99%**

Plymouth Groundwater Quality Sampling Trip
18-Dec-03

Sample ID	Spike Volume (ml)	Sample Volume (ml) (Total)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	Mg^{2+} Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)
	1	10.00	0.00	BCe	Well Conc	21	2	4	
Cation Std					Spiking Soln	207	42	52	
					Recovered	32	6	8	
					Recovery	**81%**	**105%**	**92%**	
	1	10.00	0.00	BCe	Well Conc				29
Anion Std					Spiking Soln				393
					Recovered				58
					Recovery				**89%**

Plymouth Groundwater Quality Sampling Trip
18-Dec-03

Sample ID	Spike Volume (ml)	Sample Volume (ml) (Total)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	Mg^{2+} Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)
	1	10.00	0.00	BE	Well Conc	15	2	3	
Cation Std					Spiking Soln	207	42	52	
					Recovered	37	6	9	
					Recovery	**108%**	**100%**	**115%**	
	1	10.00	0.00	BE	Well Conc				22
Anion Std					Spiking Soln				393
					Recovered				65
					Recovery				**109%**

Plymouth Groundwater Quality Sampling Trip
Jan 04

Sample ID	Spike Volume (ml)	Sample Volume (ml) (Total)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	Mg^{2+} Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)
	1	10.00	0.00	BL	Well Conc	30	4	4	
Cation Std					Spiking Soln	201	51	41	
					Recovered	52	9	10	
					Recovery	**111%**	**102%**	**131%**	
	1	10.00	0.00	BL	Well Conc				49
Anion Std					Spiking Soln				400
					Recovered				86
					Recovery				**102%**

Plymouth Groundwater Quality Sampling Trip
Jan 04

Sample ID	Spike Volume (ml)	Sample Volume (ml) (Total)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	Mg^{2+} Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)

Cation Std	1	10.00	0.00	BZ	Well Conc	33	0	1	
					Spiking Soln	201	51	41	
					Recovered	55	5	6	
					Recovery	**110%**	**94%**	**139%**	
Anion Std	1	10.00	0.00	BZ	Well Conc				22
					Spiking Soln				400
					Recovered				63
					Recovery				**104%**

Plymouth Groundwater Quality Sampling Trip
24-Feb-04

Sample ID	Spike Volume (ml)	Sample Volume (ml) (Total)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	Mg^{2+} Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)
Cation Std	1	10.00	0.00	BTj	Well Conc	18	1	1	16
					Spiking Soln	206	41	51	
					Recovered	37	5	6	
					Recovery	**101%**	**105%**	**105%**	
Anion Std	1	10.00	0.00	BTj	Well Conc				16
					Spiking Soln				369
					Recovered				53
					Recovery				**102%**

Plymouth Groundwater Quality Sampling Trip
24-Feb-04

Sample ID	Spike Volume (ml)	Sample Volume (ml) (Total)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	Mg^{2+} Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)
Cation Std	1	10.00	0.00	BMd	Well Conc	503	28	30	774
					Spiking Soln	206	41	51	
					Recovered	473	30	32	
					Recovery	**100%**	**99%**	**100%**	

Sample ID	Spike Volume (ml)	Sample Volume (ml) (Total)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	Mg^{2+} Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)
Anion Std	1	10.00	0.00	BMd	Well Conc				774
					Spiking Soln				369
					Recovered				726
					Recovery				**99%**

Plymouth Groundwater Quality Sampling Trip
24-Feb-04

Sample ID	Spike Volume (ml)	Sample Volume (ml) (Total)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	Mg^{2+} Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)
Cation Std	1	10.00	0.00	CA	Well Conc	46	14	10	
					Spiking Soln	206	41	51	
					Recovered	62	17	14	
					Recovery	**100%**	**101%**	**101%**	
Anion Std	1	10.00	0.00	CA	Well Conc				100
					Spiking Soln				369
					Recovered				127
					Recovery				**100%**

Plymouth Groundwater Quality Sampling Trip
30-Mar-04

Sample ID	Spike Volume (ml)	Sample Volume (ml) (Total)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	Mg^{2+} Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)
Cation Std	1	10.00	0.00	AR	Well Conc	25	4	6	
					Spiking Soln	200	40	50	
					Recovered	43	8	11	
					Recovery	**102%**	**102%**	**102%**	
Anion Std	1	10.00	0.00	AR	Well Conc	25	4	6	50
					Spiking Soln				376
					Recovered				74
					Recovery				**89%**

Plymouth Groundwater Quality Sampling Trip
30-Mar-04

Sample ID	Spike Volume (ml)	Sample Volume (ml) (Total)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	Mg^{2+} Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)
	1	10.00	0.00	BOh	Well Conc	290	8	9	
Cation Std					Spiking Soln	200	40	50	
					Recovered	282	12	13	
					Recovery	**100%**	**100%**	**100%**	
	1	10.00	0.00	BOh	Well Conc				422
Anion Std					Spiking Soln				376
					Recovered				417
					Recovery				**100%**

Plymouth Groundwater Quality Sampling Trip
30-Mar-04

Sample ID	Spike Volume (ml)	Sample Volume (ml) (Total)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	Mg^{2+} Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)
	1	10.00	0.00	BQ	Well Conc	9	1	0	
Cation Std					Spiking Soln	200	40	50	
					Recovered	27	5	6	
					Recovery	**97%**	**110%**	**109%**	
	1	10.00	0.00	BQ	Well Conc				9
Anion Std					Spiking Soln				376
					Recovered				38
					Recovery				**83%**

Plymouth Groundwater Quality Sampling Trip
20-Apr-04

Sample ID	Spike Volume (ml)	Sample Volume (ml) (Total)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	Mg^{2+} Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)
	1	10.00	0.00	CC	Well Conc	11	1	1	
Cation Std					Spiking Soln	187	40	50	
					Recovered	29	5	6	
					Recovery	**99%**	**105%**	**103%**	
	1	10.00	0.00	CC	Well Conc				17
Anion Std					Spiking Soln				386
					Recovered				53
					Recovery				**98%**

Plymouth Groundwater Quality Sampling Trip
20-Apr-04

Sample ID	Spike Volume (ml)	Sample Volume (ml) (Total)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	Mg^{2+} Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)
	1	10.00	0.00	BO	Well Conc	11	1	1	
Cation Std					Spiking Soln	187	40	50	
					Recovered	28	5	6	
					Recovery	**99%**	**104%**	**102%**	
	1	10.00	0.00	BO	Well Conc				14
Anion Std					Spiking Soln				386
					Recovered				49
					Recovery				**95%**

Plymouth Groundwater Quality Sampling Trip
20-Apr-04

Sample ID	Spike Volume (ml)	Sample Volume (ml)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	Mg^{2+} Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)

Cation Std	1	(Total) 10.00	0.00	AM	Well Conc	46	3	3	
					Spiking Soln	187	40	50	
					Recovered	59	7	8	
					Recovery	**98%**	**99%**	**99%**	
Anion Std	1	10.00	0.00	AM	Well Conc				70
					Spiking Soln				386
					Recovered				97
					Recovery				**96%**

Plymouth Groundwater Quality Sampling Trip
25-May-04

Sample ID	Spike Volume (ml)	Sample Volume (ml) (Total)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	Mg^{2+} Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)
Cation Std	1	10.00	0.00	BCe	Well Conc	90	3	0	
					Spiking Soln	201	38	48	
					Recovered	98	7	8	
					Recovery	**97%**	**103%**	**160%**	
Anion Std	1	10.00	0.00	BCe	Well Conc				80
					Spiking Soln				401
					Recovered				110
					Recovery				**98%**

Plymouth Groundwater Quality Sampling Trip
25-May-04

Sample ID	Spike Volume (ml)	Sample Volume (ml) (Total)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	Mg^{2+} Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)
Cation Std	1	10.00	0.00	BJ	Well Conc	74	6	6	
					Spiking Soln	201	38	48	
					Recovered	84	10	10	

					Recovery	97%	101%	101%	
Anion Std	1	10.00	0.00	BJ	Well Conc				129
					Spiking Soln				401
					Recovered				154
					Recovery				**99%**

Plymouth Groundwater Quality Sampling Trip
25-May-04

Sample ID	Spike Volume (ml)	Sample Volume (ml) (Total)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	Mg^{2+} Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)
Cation Std	1	10.00	0.00	BL	Well Conc	22	5	5	
					Spiking Soln	201	38	48	
					Recovered	37	8	9	
					Recovery	**93%**	**101%**	**100%**	
Anion Std	1	10.00	0.00	BL	Well Conc				38
					Spiking Soln				401
					Recovered				71
					Recovery				**97%**

Plymouth Groundwater Quality Sampling Trip
22-Jun-04

Sample ID	Spike Volume (ml)	Sample Volume (ml) (Total)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	Mg^{2+} Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)
Cation Std	1	10.00	0.00	AQ	Well Conc	58	1	2	
					Spiking Soln	208	40	52	
					Recovered	63	5	7	
					Recovery	**86%**	**111%**	**108%**	
Anion Std	1	10.00	0.00	AQ	Well Conc				43
					Spiking Soln				390
					Recovered				78

Recovery	101%

Plymouth Groundwater Quality Sampling Trip
SPIKES

Sample ID	Spike Volume (ml)	Sample Volume (ml) (Total)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	Mg^{2+} Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)
Cation Std	1	10.00	0.00	BCc	Well Conc	89	27	22	
					Spiking Soln	208	40	52	
					Recovered	102	30	27	
					Recovery	**101%**	**103%**	**107%**	
Anion Std	1	10.00	0.00	BCc	Well Conc				195
					Spiking Soln				390
					Recovered				217
					Recovery				**101%**

Plymouth Groundwater Quality Sampling Trip
SPIKES

Sample ID	Spike Volume (ml)	Sample Volume (ml) (Total)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	Mg^{2+} Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)
Cation Std	1	10.00	0.00	BTe	Well Conc	266	2	3	
					Spiking Soln	208	40	52	
					Recovered	243	6	8	
					Recovery	**94%**	**97%**	**102%**	
Anion Std	1	10.00	0.00	BTe	Well Conc				308
					Spiking Soln				390
					Recovered				321
					Recovery				**101%**

Plymouth Groundwater Quality Sampling Trip
13-Jul-04

Sample ID	Spike Volume (ml)	Sample Volume (ml) (Total)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	Mg^{2+} Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)
	1	10.00	0.00	AD	Well Conc	66	6	5	
Cation Std					Spiking Soln	206	42	52	
					Recovered	82	9	10	
					Recovery	**103%**	**102%**	**105%**	
	1	10.00	0.00	AD	Well Conc				38
Anion Std					Spiking Soln				393
					Recovered				128
					Recovery				**174%**

Plymouth Groundwater Quality Sampling Trip
13-Jul-04

Sample ID	Spike Volume (ml)	Sample Volume (ml) (Total)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	Mg^{2+} Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)
	1	10.00	0.00	AJ	Well Conc	151	5	6	
Cation Std					Spiking Soln	206	42	52	
					Recovered	155	8	11	
					Recovery	**99%**	**100%**	**102%**	
	1	10.00	0.00	AJ	Well Conc				250
Anion Std					Spiking Soln				393
					Recovered				263
					Recovery				**100%**

Plymouth Groundwater Quality Sampling Trip
13-Jul-04

Sample ID	Spike Volume (ml)	Sample Volume (ml) (Total)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	Mg^{2+} Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)

Cation Std	1	10.00	0.00	BTd	Well Conc	92	0	1	
					Spiking Soln	206	42	52	
					Recovered	102	4	6	
					Recovery	**99%**	**97%**	**101%**	
Anion Std	1	10.00	0.00	BTd	Well Conc				71
					Spiking Soln				393
					Recovered				106
					Recovery				**103%**

Plymouth Groundwater Quality Sampling Trip
12-Aug-04

Sample ID	Spike Volume (ml)	Sample Volume (ml) (Total)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	Mg^{2+} Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)
Cation Std	1	10.00	0.00	AL	Well Conc	104	1	1	
					Spiking Soln	209	43	54	
					Recovered	111	5	7	
					Recovery	**97%**	**102%**	**104%**	
Anion Std	1	10.00	0.00	AL	Well Conc				123
					Spiking Soln				423
					Recovered				148
					Recovery				**97%**

Plymouth Groundwater Quality Sampling Trip
12-Aug-04

Sample ID	Spike Volume (ml)	Sample Volume (ml) (Total)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	Mg^{2+} Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)
Cation Std	1	10.00	0.00	BC	Well Conc	11	0	1	
					Spiking Soln	209	43	54	
					Recovered	35	6	8	
					Recovery	**111%**	**130%**	**139%**	

	1	10.00	0.00	BC	Well Conc				12
Anion Std					Spiking Soln				423
					Recovered				52
					Recovery				**99%**

Plymouth Groundwater Quality Sampling Trip
12-Aug-04

Sample ID	Spike Volume (ml)	Sample Volume (ml) (Total)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	Mg^{2+} Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)
	1	10.00	0.00	BOd	Well Conc	66	22	22	
Cation Std					Spiking Soln	209	43	54	
					Recovered	75	23	25	
					Recovery	**93%**	**98%**	**98%**	
	1	10.00	0.00	BOd	Well Conc				188
Anion Std					Spiking Soln				423
					Recovered				209
					Recovery				**99%**

Plymouth Groundwater Quality Sampling Trip
23-Sep-04

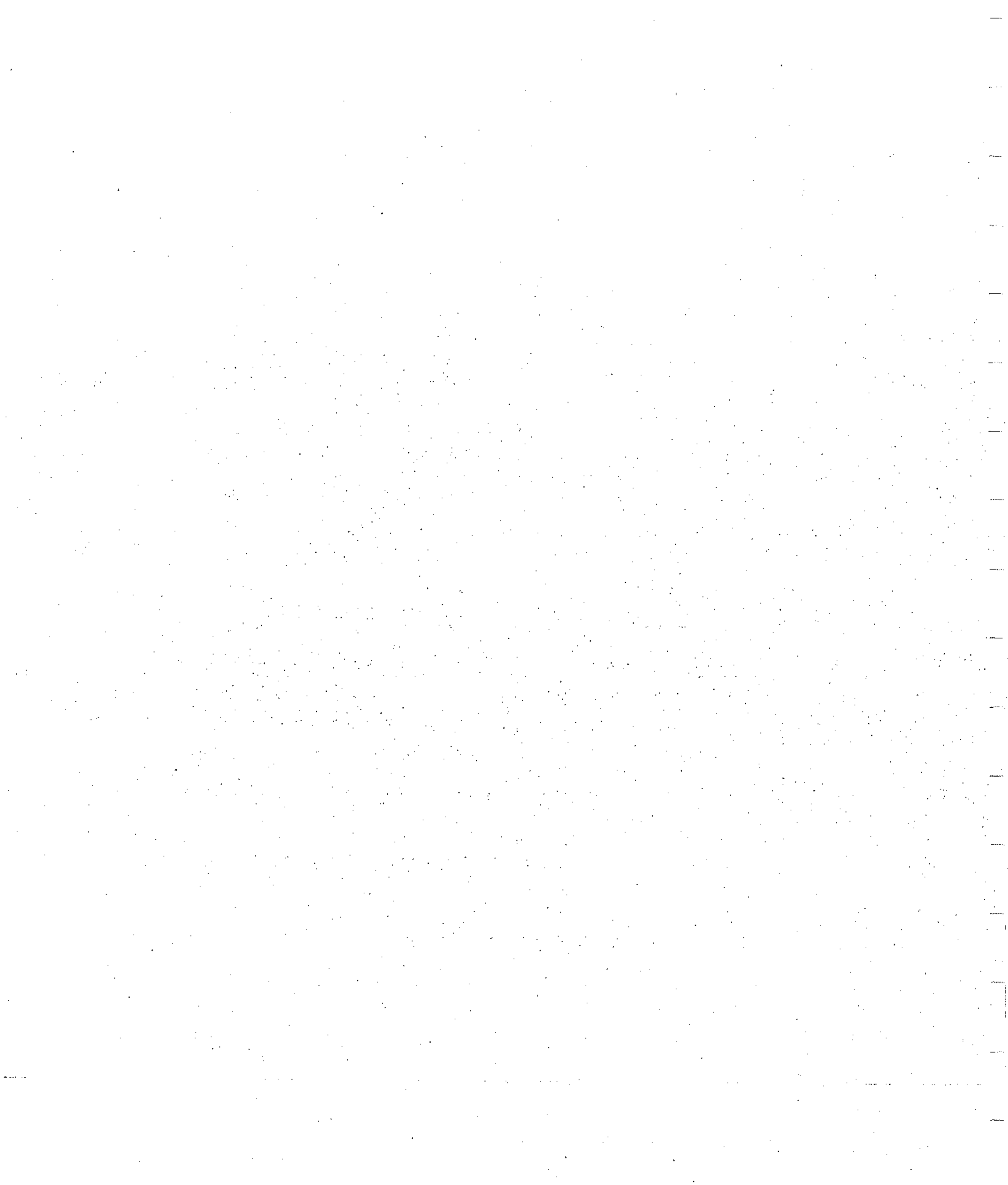
Sample ID	Spike Volume (ml)	Sample Volume (ml) (Total)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	Mg^{2+} Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)
	1	10.00	0.00	BO	Well Conc	10	1	1	
Cation Std					Spiking Soln	206	40	54	
					Recovered	31	5	6	
					Recovery	**104%**	**111%**	**99%**	
	1	10.00	0.00	BO	Well Conc				14
Anion Std					Spiking Soln				391
					Recovered				50
					Recovery				**96%**

Plymouth Groundwater Quality Sampling Trip
23-Sep-04

Sample ID	Spike Volume (ml)	Sample Volume (ml) (Total)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	Mg^{2+} Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)
	1	10.00	0.00	AE	Well Conc	54	0	0	
Cation Std					Spiking Soln	206	40	54	
					Recovered	69	5	6	
					Recovery	**100%**	**109%**	**115%**	
	1	10.00	0.00	AE	Well Conc				38
Anion Std					Spiking Soln				391
					Recovered				72
					Recovery				**99%**

Plymouth Groundwater Quality Sampling Trip
23-Sep-04

Sample ID	Spike Volume (ml)	Sample Volume (ml) (Total)	NaN_3 Volume (ml)	Well ID		Na^+ Conc. (mg/L)	Mg^{2+} Conc. (mg/L)	Ca^{2+} Conc. (mg/L)	Cl^- Conc. (mg/L)
	1	10.00	0.00	ST	Well Conc	90	8	8	
Cation Std					Spiking Soln	206	40	54	
					Recovered	101	12	12	
					Recovery	**100%**	**107%**	**100%**	
	1	10.00	0.00	ST	Well Conc				156
Anion Std					Spiking Soln				391
					Recovered				188
					Recovery				**105%**



APPENDIX E
Ground Surface Elevations

Model coordinates X	Y	model surface elevations (m)	X	Y	model surface elevations (m)
301.09057	572.24979	35.98	412.38219	467.526608	32.79
306.9915	559.69508	35.58	409.83711	466.417136	32.79
317.05599	531.53156	34.79	410.76675	466.362272	32.79
315.30339	515.78559	34.46	411.6842	466.081856	32.82
368.71654	495.90044	32.86	412.49497	465.731336	32.89
343.36633	482.10824	32.97	413.56786	465.563696	32.89
352.50118	466.96273	32.92	413.01922	474.76256	32.80
336.932	520.70202	34.31	389.94282	480.288584	32.85
360.92586	525.35631	33.93	386.4559	484.101632	32.85
346.81057	504.77926	33.00	387.2179	483.620048	32.85
308.46978	466.78899	36.93	388.2146	483.284768	32.85
392.12518	537.98418	34.42	389.17472	482.858048	32.85
396.02967	516.45006	33.40	385.92555	482.775752	32.81
415.12844	496.83922	33.09	386.64793	482.483144	32.81
437.18377	481.23042	35.47	387.60805	481.958888	32.81
469.0628	456.566	34.38	388.59865	481.580936	32.81
385.89507	465.1065	32.87	390.41526	482.973872	32.85
412.96436	463.8111	32.89	359.82248	485.671352	32.81
425.7751	484.75695	35.09	384.69416	464.054936	32.79
308.738	468.61779	36.85	459.6902	455.008472	34.61
358.96904	349.55072	36.10	432.53557	508.677656	32.67
309.11595	470.83369	36.84	431.91073	508.348472	32.67
313.02044	463.33561	36.86	431.36514	508.043672	32.64
360.9289	349.63302	36.10	430.84088	507.693152	32.64
362.68455	350.3371	36.10	430.1947	507.449312	32.64
365.2723	351.22407	36.12	429.65826	507.14756	32.64
428.05501	482.85805	35.09	429.03951	506.861048	32.64
416.74083	490.42623	34.80	428.4543	506.595872	32.64
417.97832	490.06657	34.83	427.97881	506.486144	32.64
418.99635	489.76482	34.88	426.33289	510.015728	32.71
420.24908	489.53012	34.85	425.97627	508.738616	32.71
421.45609	489.2558	34.85	441.05473	520.110704	32.50
421.77613	489.21922	34.95	427.97881	481.89488	35.17
422.07788	489.14607	34.95	440.9511	537.4904	32.33
422.52594	489.14302	34.91	441.72529	535.881056	32.33
423.4952	488.92662	34.91	408.41674	440.15252	35.05
425.1655	489.61242	34.64	373.42266	465.66428	33.02
425.14112	485.5921	35.09	616.79936	380.222744	32.41
424.72659	486.01273	35.09	841.94598	442.243448	32.86
426.72303	483.52251	35.09	590.10926	475.2134577	32.55
449.71714	506.858	33.14	812.49315	540.626792	31.73
448.87894	507.53161	33.14	813.59043	541.7576	32.68
448.0316	508.34238	33.14	410.6997	543.653456	32.36
310.69786	476.8413	36.83	586.10295	716.676224	33.04
408.7825	440.69506	34.89	806.85435	873.255032	32.81
316.77862	463.94216	36.96	449.29652	227.347256	39.97
413.68064	471.48291	32.79	342.00997	715.4936	36.08
410.44671	467.66986	32.79	365.50503	585.5291878	33.39
411.4617	467.65158	32.79	367.56963	582.7195964	33.39
			370.08858	579.7446367	33.41
			509.03122	546.994064	35.24
			510.53084	546.762416	35.28
			512.02741	546.530768	35.45

APPENDIX F
August 2003 – July 2004 Hydraulic Head Data

Well	Date	Head (m-MSL)	Well	Date	Head (m-MSL)	Well	Date	Head (m-MSL)
AA	8/26/2003	7.54	AA	12/18/2003	dry	AA	4/20/2004	7.46
AB	8/26/2003	7.58	AB	12/18/2003	7.42	AB	4/20/2004	7.48
AC	8/26/2003	7.61	AC	12/18/2003	7.50	AC	4/20/2004	7.54
AD	8/26/2003	7.64	AD	12/18/2003	7.53	AD	4/20/2004	7.55
AE	8/26/2003	7.60	AE	12/18/2003	7.52	AE	4/20/2004	7.52
AF	8/26/2003	7.69	AF	12/18/2003	7.57	AF	4/20/2004	7.60
AG	8/26/2003	7.71	AG	12/18/2003	7.57	AG	4/20/2004	7.61
AH	8/26/2003	7.76	AH	12/18/2003	7.61	AH	4/20/2004	7.64
AI	8/26/2003	7.65	AI	12/18/2003	dry	AI	4/20/2004	7.56
AJ	8/26/2003	7.63	AJ	12/18/2003	7.53	AJ	4/20/2004	7.55
AK	8/26/2003	7.71	AK	12/18/2003	7.62	AK	4/20/2004	7.61
AL	8/26/2003	7.69	AL	12/18/2003	7.58	AL	4/20/2004	7.60
AM	8/26/2003	7.82	AM	12/18/2003	dry	AM	4/20/2004	7.72
AN	8/26/2003	7.61	AN	12/18/2003	7.53	AN	4/20/2004	7.56
AO	8/26/2003	7.60	AO	12/18/2003	7.50	AO	4/20/2004	7.53
AP	8/26/2003	7.66	AP	12/18/2003	7.58	AP	4/20/2004	7.60
AQ	8/26/2003	7.64	AQ	12/18/2003	7.60	AQ	4/20/2004	7.63
AR	8/26/2003	7.73	AR	12/18/2003	7.67	AR	4/20/2004	7.71
AS	8/26/2003	7.78	AS	12/18/2003	7.67	AS	4/20/2004	7.70
AT	8/26/2003	7.76	AT	12/18/2003	7.67	AT	4/20/2004	7.71
AU	8/26/2003	7.67	AU	12/18/2003	7.63	AU	4/20/2004	7.66
AV	8/26/2003	7.81	AV	12/18/2003	7.66	AV	4/20/2004	7.72
AW	8/26/2003	8.07	AW	12/18/2003	7.91	AW	4/20/2004	7.96
AX	8/26/2003	7.79	AX	12/18/2003	7.65	AX	4/20/2004	7.70
AY	8/26/2003	7.90	AY	12/18/2003	7.77	AY	4/20/2004	7.80
AZ	8/26/2003	8.09	AZ	12/18/2003	7.93	AZ	4/20/2004	7.98
BA	8/26/2003	8.04	BA	12/18/2003	7.89	BA	4/20/2004	7.93
BB	8/26/2003	8.08	BB	12/18/2003	7.92	BB	4/20/2004	7.96
BC	8/26/2003	7.68	BC	12/18/2003	7.67	BC	4/20/2004	7.70
BCa	8/26/2003	7.69	BCa	12/18/2003	7.60	BCa	4/20/2004	7.62
BCb	8/26/2003	7.69	BCb	12/18/2003	7.60	BCb	4/20/2004	7.61
BCc	8/26/2003	7.73	BCc	12/18/2003	7.64	BCc	4/20/2004	7.66
BCd	8/26/2003	7.69	BCd	12/18/2003	7.60	BCd	4/20/2004	7.64
BCe	8/26/2003	7.70	BCe	12/18/2003	7.62	BCe	4/20/2004	7.63
BCf	8/26/2003	7.69	BCf	12/18/2003	7.60	BCf	4/20/2004	7.63
BCg	8/26/2003	7.70	BCg	12/18/2003	7.60	BCg	4/20/2004	7.64
BCh	8/26/2003	7.70	BCh	12/18/2003	7.60	BCh	4/20/2004	7.64
BCi	8/26/2003	7.71	BCi	12/18/2003	7.61	BCi	4/20/2004	7.64
BCj	8/26/2003	7.69	BCj	12/18/2003	7.60	BCj	4/20/2004	7.63
BD	8/26/2003	7.72	BD	12/18/2003	7.64	BD	4/20/2004	7.67
BE	8/26/2003	7.68	BE	12/18/2003	7.61	BE	4/20/2004	7.63
BF	8/26/2003	7.71	BF	12/18/2003	7.70	BF	4/20/2004	7.68
BG	8/26/2003	7.60	BG	12/18/2003	7.55	BG	4/20/2004	7.58
BH	8/26/2003	7.57	BH	12/18/2003	7.54	BH	4/20/2004	7.57
BI	8/26/2003	7.56	BI	12/18/2003	7.55	BI	4/20/2004	7.58
BJ	8/26/2003	7.80	BJ	12/18/2003	7.65	BJ	4/20/2004	7.68
BK	8/26/2003	7.83	BK	12/18/2003	7.74	BK	4/20/2004	7.78
BL	8/26/2003	7.83	BL	12/18/2003	7.68	BL	4/20/2004	7.71
BM	8/26/2003	7.71	BM	12/18/2003	7.64	BM	4/20/2004	7.67
BMa	8/26/2003	7.74	BMa	12/18/2003	7.66	BMa	4/20/2004	7.68
BMb	8/26/2003	7.74	BMb	12/18/2003	7.65	BMb	4/20/2004	7.68
BMc	8/26/2003	7.76	BMc	12/18/2003	7.66	BMc	4/20/2004	7.69
BMd	8/26/2003	7.75	BMd	12/18/2003	7.66	BMd	4/20/2004	7.68
BMe	8/26/2003	7.74	BMe	12/18/2003	7.66	BMe	4/20/2004	7.69
BMf	8/26/2003	7.74	BMf	12/18/2003	7.66	BMf	4/20/2004	7.69
BMg	8/26/2003	7.75	BMg	12/18/2003	7.67	BMg	4/20/2004	7.70
BMh	8/26/2003	7.75	BMh	12/18/2003	7.65	BMh	4/20/2004	7.70
BN	8/26/2003	7.74	BN	12/18/2003	7.63	BN	4/20/2004	7.66
BO	8/26/2003	7.74	BO	12/18/2003	7.63	BO	4/20/2004	7.66
BOa	8/26/2003	7.72	BOa	12/18/2003	7.62	BOa	4/20/2004	7.64
BOb	8/26/2003	7.72	BOb	12/18/2003	7.61	BOb	4/20/2004	7.64
BOc	8/26/2003	7.73	BOc	12/18/2003	7.62	BOc	4/20/2004	7.64
BOd	8/26/2003	7.73	BOd	12/18/2003	7.61	BOd	4/20/2004	7.65
BOe	8/26/2003	7.72	BOe	12/18/2003	7.61	BOe	4/20/2004	7.63
BOf	8/26/2003	7.74	BOf	12/18/2003	7.62	BOf	4/20/2004	7.65
BOg	8/26/2003	7.74	BOg	12/18/2003	7.64	BOg	4/20/2004	7.64
BOh	8/26/2003	7.73	BOh	12/18/2003	7.64	BOh	4/20/2004	7.65

AW	9/18/2003	7.88	AW	1/20/2004	7.87	AW	5/25/2004	7.94
AX	9/18/2003	7.72	AX	1/20/2004	7.60	AX	5/25/2004	7.71
AY	9/18/2003	7.81	AY	1/20/2004	7.75	AY	5/25/2004	7.79
AZ	9/18/2003	7.95	AZ	1/20/2004	7.89	AZ	5/25/2004	7.97
BA	9/18/2003	7.93	BA	1/20/2004	7.85	BA	5/25/2004	7.93
BB	9/18/2003	7.94	BB	1/20/2004	7.87	BB	5/25/2004	7.94
BC	9/18/2003	7.65	BC	1/20/2004	7.59	BC	5/25/2004	7.67
BCa	9/18/2003	7.60	BCa	1/20/2004	7.52	BCa	5/25/2004	7.60
BCb	9/18/2003	7.54	BCb	1/20/2004	7.22	BCb	5/25/2004	7.58
BCc	9/18/2003	7.61	BCc	1/20/2004	7.57	BCc	5/25/2004	7.64
BCd	9/18/2003	7.57	BCd	1/20/2004	7.54	BCd	5/25/2004	7.59
BCe	9/18/2003	7.60	BCe	1/20/2004	7.54	BCe	5/25/2004	7.61
BCf	9/18/2003	7.60	BCf	1/20/2004	7.54	BCf	5/25/2004	7.61
BCg	9/18/2003	7.63	BCg	1/20/2004	7.54	BCg	5/25/2004	7.60
BCh	9/18/2003	7.60	BCh	1/20/2004	7.55	BCh	5/25/2004	7.64
BCi	9/18/2003	7.60	BCi	1/20/2004	7.55	BCi	5/25/2004	7.64
BCj	9/18/2003	7.61	BCj	1/20/2004	7.53	BCj	5/25/2004	7.62
BD	9/18/2003	7.63	BD	1/20/2004	7.58	BD	5/25/2004	7.64
BE	9/18/2003	7.48	BE	1/20/2004	7.54	BE	5/25/2004	7.63
BF	9/18/2003	7.74	BF	1/20/2004	7.58	BF	5/25/2004	7.68
BG	9/18/2003	7.51	BG	1/20/2004	7.48	BG	5/25/2004	7.53
BH	9/18/2003	7.48	BH	1/20/2004	7.46	BH	5/25/2004	7.54
BI	9/18/2003	7.51	BI	1/20/2004	7.47	BI	5/25/2004	7.54
BJ	9/18/2003	7.71	BJ	1/20/2004	7.59	BJ	5/25/2004	7.69
BK	9/18/2003	7.70	BK	1/20/2004	7.66	BK	5/25/2004	7.76
BL	9/18/2003	7.71	BL	1/20/2004	7.62	BL	5/25/2004	7.71
BM	9/18/2003	7.55	BM	1/20/2004	7.55	BM	5/25/2004	7.66
BMa	9/18/2003	7.65	BMa	1/20/2004	7.57	BMa	5/25/2004	7.67
BMb	9/18/2003	7.64	BMb	1/20/2004	7.56	BMb	5/25/2004	7.66
BMc	9/18/2003	7.63	BMc	1/20/2004	7.56	BMc	5/25/2004	7.67
BMd	9/18/2003	7.65	BMd	1/20/2004	7.56	BMd	5/25/2004	7.67
BMe	9/18/2003	7.64	BMe	1/20/2004	7.56	BMe	5/25/2004	7.67
BMf	9/18/2003	7.51	BMf	1/20/2004	7.56	BMf	5/25/2004	7.67
BMg	9/18/2003	7.56	BMg	1/20/2004	7.59	BMg	5/25/2004	7.68
BMh	9/18/2003	7.64	BMh	1/20/2004	7.56	BMh	5/25/2004	7.67
BN	9/18/2003	7.62	BN	1/20/2004	7.53	BN	5/25/2004	7.65
BO	9/18/2003	7.63	BO	1/20/2004	7.50	BO	5/25/2004	7.64
BOa	9/18/2003	7.62	BOa	1/20/2004	7.48	BOa	5/25/2004	7.64
BOb	9/18/2003	7.50	BOb	1/20/2004	7.53	BOb	5/25/2004	7.63
BOc	9/18/2003	7.64	BOc	1/20/2004	7.56	BOc	5/25/2004	7.64
BOd	9/18/2003	7.61	BOd	1/20/2004	7.61	BOd	5/25/2004	7.65
BOe	9/18/2003	7.58	BOe	1/20/2004	7.52	BOe	5/25/2004	7.62
BOf	9/18/2003	7.64	BOf	1/20/2004	7.56	BOf	5/25/2004	7.65
BOg	9/18/2003	7.64	BOg	1/20/2004	7.56	BOg	5/25/2004	7.64
BOh	9/18/2003	7.62	BOh	1/20/2004	7.55	BOh	5/25/2004	7.65
BP	9/18/2003	7.66	BP	1/20/2004	7.55	BP	5/25/2004	7.67
BQ	9/18/2003	7.64	BQ	1/20/2004	7.52	BQ	5/25/2004	7.64
BR	9/18/2003	7.67	BR	1/20/2004	7.52	BR	5/25/2004	7.69
BS	9/18/2003	7.67	BS	1/20/2004	7.60	BS	5/25/2004	7.68
BTa	9/18/2003	7.53	BTa	1/20/2004	7.49	BTa	5/25/2004	7.56
BTb	9/18/2003	7.54	BTb	1/20/2004	7.50	BTb	5/25/2004	7.57
BTc	9/18/2003	7.54	BTc	1/20/2004	7.49	BTc	5/25/2004	7.57
BTd	9/18/2003	7.54	BTd	1/20/2004	7.49	BTd	5/25/2004	7.57
BTe	9/18/2003	7.55	BTe	1/20/2004	7.50	BTe	5/25/2004	7.57
BTf	9/18/2003	7.42	BTf	1/20/2004	7.36	BTf	5/25/2004	7.44
BTg	9/18/2003	7.55	BTg	1/20/2004	7.49	BTg	5/25/2004	7.56
BTh	9/18/2003	7.56	BTh	1/20/2004	7.50	BTh	5/25/2004	7.61
BTi	9/18/2003	7.54	BTi	1/20/2004	7.50	BTi	5/25/2004	7.57
BTj	9/18/2003	7.52	BTj	1/20/2004	7.48	BTj	5/25/2004	7.86
BTk	9/18/2003	7.51	BTk	1/20/2004	7.48	BTk	5/25/2004	7.54
BU	9/18/2003	7.46	BU	1/20/2004	7.44	BU	5/25/2004	7.52
BX	9/18/2003	7.62	BX	1/20/2004	7.57	BX	5/25/2004	7.64
BY	9/18/2003	7.36	BY	1/20/2004	7.39	BY	5/25/2004	7.50
BZ	9/18/2003	7.42	BZ	1/20/2004	7.37	BZ	5/25/2004	7.45
CA	9/18/2003	7.48	CA	1/20/2004	7.42	CA	5/25/2004	7.50
CB	9/18/2003	7.74	CB	1/20/2004	7.68	CB	5/25/2004	7.76
CC	9/18/2003	8.05	CC	1/20/2004	7.88	CC	5/25/2004	7.97
CD	9/18/2003	7.57	CD	1/20/2004	7.53	CD	5/25/2004	7.61

BJ	10/30/2003	7.44	BJ	2/24/2004	7.58	BJ	6/22/2004	7.59
BK	10/30/2003	7.52	BK	2/24/2004	7.68	BK	6/22/2004	7.65
BL	10/30/2003	7.49	BL	2/24/2004	7.60	BL	6/22/2004	7.61
BM	10/30/2003	7.43	BM	2/24/2004	frozen	BM	6/22/2004	7.57
BMa	10/30/2003	7.45	BMa	2/24/2004	frozen	BMa	6/22/2004	7.57
BMb	10/30/2003	7.46	BMb	2/24/2004	frozen	BMb	6/22/2004	7.57
BMc	10/30/2003	7.42	BMc	2/24/2004	frozen	BMc	6/22/2004	7.57
BMd	10/30/2003	7.45	BMd	2/24/2004	7.53	BMd	6/22/2004	7.57
BMe	10/30/2003	7.48	BMe	2/24/2004	frozen	BMe	6/22/2004	7.57
BMf	10/30/2003	7.46	BMf	2/24/2004	7.18	BMf	6/22/2004	7.57
BMg	10/30/2003	7.46	BMg	2/24/2004	frozen	BMg	6/22/2004	7.58
BMh	10/30/2003	7.46	BMh	2/24/2004	frozen	BMh	6/22/2004	7.70
BN	10/30/2003	7.42	BN	2/24/2004	frozen	BN	6/22/2004	7.43
BO	10/30/2003	7.45	BO	2/24/2004	frozen	BO	6/22/2004	7.58
BOa	10/30/2003	7.43	BOa	2/24/2004	frozen	BOa	6/22/2004	7.59
BOb	10/30/2003	7.43	BOb	2/24/2004	frozen	BOb	6/22/2004	7.59
BOc	10/30/2003	7.38	BOc	2/24/2004	frozen	BOc	6/22/2004	7.49
BOd	10/30/2003	7.41	BOd	2/24/2004	frozen	BOd	6/22/2004	7.53
BOe	10/30/2003	7.42	BOe	2/24/2004	frozen	BOe	6/22/2004	7.51
BOf	10/30/2003	7.38	BOf	2/24/2004	frozen	BOf	6/22/2004	7.55
BOg	10/30/2003	7.39	BOg	2/24/2004	frozen	BOg	6/22/2004	7.54
BOh	10/30/2003	7.41	BOh	2/24/2004	frozen	BOh	6/22/2004	7.54
BP	10/30/2003	7.45	BP	2/24/2004	frozen	BP	6/22/2004	7.57
BQ	10/30/2003	7.38	BQ	2/24/2004	6.61	BQ	6/22/2004	7.54
BR	10/30/2003	7.46	BR	2/24/2004	frozen	BR	6/22/2004	7.58
BS	10/30/2003	7.47	BS	2/24/2004	7.60	BS	6/22/2004	7.58
BTa	10/30/2003	7.36	BTa	2/24/2004	7.49	BTa	6/22/2004	7.49
BTb	10/30/2003	7.38	BTb	2/24/2004	7.49	BTb	6/22/2004	7.48
BTc	10/30/2003	7.38	BTc	2/24/2004	7.50	BTc	6/22/2004	7.47
BTd	10/30/2003	7.36	BTd	2/24/2004	7.49	BTd	6/22/2004	7.47
BTe	10/30/2003	7.39	BTe	2/24/2004	7.49	BTe	6/22/2004	7.48
BTf	10/30/2003	7.25	BTf	2/24/2004	7.36	BTf	6/22/2004	7.35
BTg	10/30/2003	7.37	BTg	2/24/2004	7.51	BTg	6/22/2004	7.46
BTh	10/30/2003	7.36	BTh	2/24/2004	7.50	BTh	6/22/2004	7.43
BTi	10/30/2003	7.39	BTi	2/24/2004	7.50	BTi	6/22/2004	7.46
BTj	10/30/2003	7.40	BTj	2/24/2004	7.49	BTj	6/22/2004	7.40
BTk	10/30/2003	7.36	BTk	2/24/2004	7.45	BTk	6/22/2004	7.45
BU	10/30/2003	7.32	BU	2/24/2004	7.42	BU	6/22/2004	7.41
BX	10/30/2003	7.46	BX	2/24/2004	7.54	BX	6/22/2004	7.53
BY	10/30/2003	7.28	BY	2/24/2004	7.39	BY	6/22/2004	7.36
BZ	10/30/2003	7.28	BZ	2/24/2004	7.36	BZ	6/22/2004	7.34
CA	10/30/2003	7.22	CA	2/24/2004	7.39	CA	6/22/2004	7.39
CB	10/30/2003	7.56	CB	2/24/2004	7.71	CB	6/22/2004	7.67
CC	10/30/2003	7.72	CC	2/24/2004	7.88	CC	6/22/2004	7.87
CD	10/30/2003	7.39	CD	2/24/2004	7.52	CD	6/22/2004	7.50
ST	10/30/2003	7.18	ST	2/24/2004	7.29	ST	6/22/2004	7.59
10	10/13/2003	7.50	10	2/19/2004	7.74	10	6/15/2004	7.76
11	10/13/2003	7.41	11	2/19/2004	7.68	11	6/15/2004	7.62
12	10/13/2003	7.23	12	2/19/2004	7.53	12	6/15/2004	7.52
13B	10/13/2003	7.25	13B	2/19/2004	7.43	13B	6/15/2004	7.35
13C	10/13/2003	7.83	13C	2/19/2004	7.55	13C	6/15/2004	7.30
14A	10/13/2003	6.89	14A	2/19/2004	7.33	14A	6/15/2004	7.39
14B	10/13/2003	6.89	14B	2/19/2004	7.33	14B	6/15/2004	7.40
14C	10/13/2003	6.91	14C	2/19/2004	7.34	14C	6/15/2004	7.37
14D	10/13/2003	6.93	14D	2/19/2004	7.29	14D	6/15/2004	7.36
15	10/13/2003	6.67	15	2/19/2004	7.02	15	6/15/2004	7.04
16	10/13/2003	6.74	16	2/19/2004	6.74	16	6/15/2004	6.77
18	10/13/2003	7.81	18	2/19/2004	7.99	18	6/15/2004	8.12
19	10/13/2003	7.58	19	2/19/2004	7.86	19	6/15/2004	7.87
20	10/13/2003	6.73	20	2/19/2004	7.05	20	6/15/2004	7.10
23	10/13/2003	7.12	23	2/19/2004	7.30	23	6/15/2004	7.38
23A	10/13/2003	7.24	23A	2/19/2004	7.30	23A	6/15/2004	7.38
23B	10/13/2003	7.28	23B	2/19/2004	7.31	23B	6/15/2004	7.39
24	10/13/2003	6.65	24	2/19/2004	7.34	24	6/15/2004	7.36
24A	10/13/2003	6.66	24A	2/19/2004	7.33	24A	6/15/2004	7.37
24B	10/13/2003	6.67	24B	2/19/2004	6.88	24B	6/15/2004	7.35
Well	Date	Head (m-MSL)	Well	Date	Head (m-MSL)	Well	Date	Head (m-MSL)

BQ	11/11/2003	7.40	BQ	3/30/2004	7.53	BQ	7/13/2004	0.00
BR	11/11/2003	7.42	BR	3/30/2004	7.55	BR	7/13/2004	0.00
BS	11/11/2003	7.43	BS	3/30/2004	7.57	BS	7/13/2004	0.00
BTa	11/11/2003	7.33	BTa	3/30/2004	7.47	BTa	7/13/2004	0.00
BTb	11/11/2003	7.35	BTb	3/30/2004	7.49	BTb	7/13/2004	0.00
BTc	11/11/2003	7.35	BTc	3/30/2004	7.49	BTc	7/13/2004	0.00
BTd	11/11/2003	7.35	BTd	3/30/2004	7.45	BTd	7/13/2004	0.00
BTe	11/11/2003	7.34	BTe	3/30/2004	7.54	BTe	7/13/2004	0.00
BTf	11/11/2003	7.22	BTf	3/30/2004	7.39	BTf	7/13/2004	0.00
BTg	11/11/2003	7.35	BTg	3/30/2004	7.46	BTg	7/13/2004	0.00
BTh	11/11/2003	7.35	BTh	3/30/2004	7.50	BTh	7/13/2004	0.00
BTi	11/11/2003	7.34	BTi	3/30/2004	7.49	BTi	7/13/2004	0.00
BTj	11/11/2003	7.33	BTj	3/30/2004	7.48	BTj	7/13/2004	0.00
BTk	11/11/2003	7.34	BTk	3/30/2004	7.48	BTk	7/13/2004	0.00
BU	11/11/2003	7.31	BU	3/30/2004	7.46	BU	7/13/2004	0.00
BX	11/11/2003	7.39	BX	3/30/2004	7.54	BX	7/13/2004	0.00
BY	11/11/2003	7.25	BY	3/30/2004	7.37	BY	7/13/2004	0.00
BZ	11/11/2003	7.24	BZ	3/30/2004	7.43	BZ	7/13/2004	0.00
CA	11/11/2003	7.24	CA	3/30/2004	7.39	CA	7/13/2004	0.00
CB	11/11/2003	7.47	CB	3/30/2004	7.65	CB	7/13/2004	0.00
CC	11/11/2003	7.72	CC	3/30/2004	7.87	CC	7/13/2004	0.00
CD	11/11/2003	7.35	CD	3/30/2004	7.36	CD	7/13/2004	0.00
ST	11/11/2003	7.17	ST	3/30/2004	7.31	ST	7/13/2004	0.00
10	11/11/2003	7.31	10	3/16/2004	7.75	10	7/20/2004	0.00
11	11/11/2003	7.46	11	3/16/2004	7.60	11	7/20/2004	0.00
12	11/11/2003	7.36	12	3/16/2004	7.50	12	7/20/2004	0.00
13B	11/11/2003	7.21	13B	3/16/2004	7.35	13B	7/20/2004	0.00
13C	11/11/2003	7.18	13C	3/16/2004	7.24	13C	7/20/2004	0.00
14A	11/11/2003	7.22	14A	3/16/2004	7.42	14A	7/20/2004	0.00
14B	11/11/2003	7.23	14B	3/16/2004	7.42	14B	7/20/2004	0.00
14C	11/11/2003	7.24	14C	3/16/2004	7.44	14C	7/20/2004	0.00
14D	11/11/2003	7.21	14D	3/16/2004	7.44	14D	7/20/2004	0.00
15	11/11/2003	6.87	15	3/16/2004	7.04	15	7/20/2004	0.00
16	11/11/2003	6.63	16	3/16/2004	6.76	16	7/20/2004	0.00
18	11/11/2003	was this dry?	18	3/16/2004	8.09	18	7/20/2004	0.00
19	11/11/2003	7.72	19	3/16/2004	7.85	19	7/20/2004	0.00
20	11/11/2003	dry	20	3/16/2004	7.10	20	7/20/2004	0.00
23	11/11/2003	7.15	23	3/16/2004	7.39	23	7/20/2004	0.00
23A	11/11/2003	7.16	23A	3/16/2004	7.40	23A	7/20/2004	0.00
23B	11/11/2003	7.17	23B	3/16/2004	7.38	23B	7/20/2004	0.00
24	11/11/2003	7.21	24	3/16/2004	7.39	24	7/20/2004	0.00
24A	11/11/2003	7.21	24A	3/16/2004	7.40	24A	7/20/2004	0.00
24B	11/11/2003	7.17	24B	3/16/2004	7.38	24B	7/20/2004	0.00

APPENDIX G
Hindcasted Specific Conductivity and Ion Data

Row	Well	Travel time days	wks	mos	origin date	Origin	Cl- Conc. (mg/L)	Na+ Conc. (mg/L)	Ca+2 Conc. (mg/L)	Mg+2 Conc. (mg/L)
22	AQ	330	47	11	1/23/2002	N of WB lane, near 4 UG wells across rd	11.3	9.1		
11	AK	240	34	8	3/17/2002	@ E BC, east of median 13 area	7.4		19.0	4.3
20	CB	240	34	8	3/17/2002	N of WB lane, near 4 UG wells across rd	8.6		22.3	2.3
22	AQ	330	47	11	3/27/2002		11.1	9.4	3.2	2.9
24	AR	300	43	10	3/27/2002	N of WB lane, N of median 8	14.3	14.0	0.0	2.3
11	AK	240	34	8	4/23/2002	@ E BC, east of median 13 area	6.4	5.0		
24	AR	300	43	10	4/26/2002	N of WB lane, N of median 8	19.5	12.6	4.1	3.1
11	AK	240	34	8	5/26/2002	@ E BC, east of median 13 area	5.4	7.3	2.3	1.0
21	CB	240	34	8	5/26/2002	N of WB lane, near 4 UG wells across rd	50.9	37.5	0.0	9.9
22	AQ	330	47	11	5/28/2002	N of WB lane, near 4 UG wells across rd	42.1	25.2	4.7	2.9
10	AI	200	29	7	6/2/2002	b/w areas 6/16, N of ramp, S of shoulder	11.9	10.4		
21	CA	160	23	5	6/5/2002	rest area, near E BC	6.1		31.6	3.4
9	AC	190	27	6	6/12/2002	b/w areas 6/16, N of ramp, S of shoulder	12.7	11.4		
11	AK	240	34	8	6/25/2002	@ E BC, east of median 13 area	7.3	9.5	1.7	1.6
14	AN	210	30	7	6/25/2002	area 12 (south shoulder of EB lane)	10.8	12.2	2.6	2.5
12	AG	130	19	4	7/5/2002	area 12 (south shoulder of EB lane)	7.3		35.2	9.8
10	AI	200	29	7	7/5/2002	b/w areas 6/16, N of ramp, S of shoulder	8.3	8.6	2.9	2.7
14	AF	120	17	4	7/15/2002	area 12 (south shoulder of EB lane)	7.3		11.1	1.9
21	BZ	120	17	4	7/15/2002	effective basin	6.7		72.7	8.2
22	AQ	330	47	11	7/20/2002	N of WB lane, near 4 UG wells across rd	15.0	13.2		0.94
14	AN	210	30	7	7/25/2002	area 12 (south shoulder of EB lane)	13.8	14.0	3.1	3.5
10	AI	200	29	7	8/4/2002	b/w areas 6/16, N of ramp, S of shoulder	23.3	15.8	2.5	3.5
9	AC	190	27	6	8/14/2002	b/w areas 6/16, N of ramp, S of shoulder	13.6	10.2	1.2	2.1
13	AH	90	13	3	8/14/2002	area 12 (south shoulder of EB lane)	7.4		48.4	9.0
20	BTj	90	13	3	8/14/2002	effective basin	-3.7		21.3	3.2
21	CA	160	23	5	8/14/2002	rest area, near E BC	24.9	23.1	4.8	5.6
24	AR	300	43	10	8/19/2002	N of WB lane, N of median 8	53.1	24.0		5.67
9	AD	150	21	5	8/24/2002	b/w areas 6/16, N of ramp, S of shoulder	16.7	10.7	2.6	3.0
16	AS	80	11	3	8/24/2002	area 12 (south shoulder of EB lane)	7.4		42.9	11.5
11	AK	240	34	8	8/26/2002	@ E BC, east of median 13 area	19.0	12.7	5.5	2.2
21	CB	240	34	8	8/26/2002	N of WB lane, near 4 UG wells across rd	318.3	155.3	27.0	27.2
20	BTg	70	10	2	9/3/2002	effective basin	-0.1		20.8	6.8
20	BTh	70	10	2	9/3/2002	effective basin	-1.0		16.3	5.3
20	BTf	68	10	2	9/5/2002	effective basin	0.7		21.9	9.1
20	BTa	65	9	2	9/8/2002	effective basin	5.4		30.2	9.9
20	BTb	65	9	2	9/8/2002	effective basin	4.4		33.2	10.8
20	BTc	65	9	2	9/8/2002	effective basin	3.6		36.5	11.6
20	BTd	65	9	2	9/8/2002	effective basin	2.7		24.2	9.9
20	BTe	65	9	2	9/8/2002	effective basin	1.7		27.9	10.3
7	AA	160	23	5	9/13/2002	rest area	4.7	10.4	1.1	1.7
14	AF	120	17	4	9/23/2002	area 12 (south shoulder of EB lane)	22.8	8.4	2.5	3.5
20	BTk	50	7	2	9/23/2002	effective basin	7.3		19.0	3.7
21	BZ	120	17	4	9/23/2002	effective basin	33.7	33.8	0.0	10.0
14	AN	210	30	7	9/25/2002	area 12 (south shoulder of EB lane)	19.1	18.8	4.1	3.6
16	AS	80	11	3	9/30/2002	area 12 (south shoulder of EB lane)	456.6	254.8		
20	BCd	40	6	1	10/3/2002	effective basin	0.2		18.2	4.8
20	BCe	40	6	1	10/3/2002	effective basin	-1.6		12.5	1.0
10	AI	200	29	7	10/5/2002	b/w areas 6/16, N of ramp, S of shoulder	69.6	42.7	4.3	7.7
21	BE	35	5	1	10/8/2002	effective basin	-0.5		13.6	1.6
22	BG	30	4	1	10/13/2002	N of WB lane, near 4 UG wells across rd	7.6		35.2	9.6
9	AC	190	27	6	10/15/2002	b/w areas 6/16, N of ramp, S of shoulder	39.3	24.9	1.7	2.8
11	AK	240	34	8	10/18/2002	@ E BC, east of median 13 area	15.6	11.5		4.25
20	BCg	25	4	1	10/18/2002	effective basin	2.9		25.2	10.1
21	CB	240	34	8	10/18/2002	N of WB lane, near 4 UG wells across rd	157.0	90.7		12.17
13	AH	90	13	3	10/23/2002	area 12 (south shoulder of EB lane)	37.8	25.6	0.0	2.2
22	AQ	330	47	11	10/23/2002	N of WB lane, near 4 UG wells across rd	108.9	63.3		
19	BCa	20	3	1	10/23/2002	effective basin	6.0		11.4	3.2
19	BCb	20	3	1	10/23/2002	effective basin	3.6		17.5	2.2
20	BCc	20	3	1	10/23/2002	effective basin	2.0		18.7	5.2
21	BD	20	3	1	10/23/2002	effective basin	5.6		17.0	7.6
20	BTj	90	13	3	10/23/2002	effective basin	26.0	21.4	0.0	2.9
21	BZ	120	17	4	10/23/2002	effective basin	22.8	19.7	4.9	6.6
20	BMe	17	2	1	10/26/2002	effective basin	1.5		12.0	0.5
20	BCf	15	2	1	10/28/2002	effective basin	6.8		10.5	5.2
20	BMc	11	2	0	11/1/2002	effective basin	3.0		13.6	0.9
16	AS	80	11	3	11/2/2002	area 12 (south shoulder of EB lane)	150.0	82.5	12.5	8.7
19	BMd	10	1	0	11/2/2002	effective basin	2.1		13.3	0.8
19	BMa	7	1	0	11/5/2002	effective basin	4.8		28.8	4.9
20	BCd	40	6	1	11/9/2002	effective basin	48.0	13.7		
20	BCe	40	6	1	11/9/2002	effective basin	7.4	12.1		
20	AT	2	0	0	11/10/2002	effective basin	7.3		24.3	6.1
20	BTg	70	10	2	11/12/2002	effective basin	429.3	124.2	52.5	44.2
8	AB	35	5	1	11/14/2002	west of rest area, runoff slope	12.7	14.2		
20	BTf	68	10	2	11/14/2002	effective basin	426.9	72.0	0.0	84.4
14	AN	210	30	7	11/17/2002	area 12 (south shoulder of EB lane)	151.0	74.2		9.26
20	BTa	65	9	2	11/17/2002	effective basin	10.5	12.9	0.0	4.0
20	BTb	65	9	2	11/17/2002	effective basin	117.5	33.3	0.0	19.7
20	BTc	65	9	2	11/17/2002	effective basin	55.9	19.1	0.0	11.3
20	BTd	65	9	2	11/17/2002	effective basin	26.2	15.6	0.0	4.5
20	BCi	30	4	1	11/19/2002	effective basin	163.1	31.9		
20	BTj	90	13	3	11/22/2002	effective basin	27.9	26.1	2.3	1.3
10	AI	200	29	7	11/27/2002	b/w areas 6/16, N of ramp, S of shoulder	13.9	23.7		0.3
16	AS	80	11	3	11/1/2003	area 12 (south shoulder of EB lane)	342.8	219.9		13.0
19	BMd	10	1	0	11/1/2003	effective basin	93.1	43.7	6.7	5.5
19	BN	10	1	0	11/1/2003	effective basin	148.5	65.6	10.2	8.9
20	BMb	9	1	0	11/2/2003	effective basin	77.6	50.9	7.4	5.6
20	BMe	7	1	0	11/4/2003	effective basin	85.0	52.0	8.5	7.7
21	BCj	42	6	1	11/6/2003	effective basin	24.8		2.8	2.0
10	AI	200	29	7	11/7/2003	b/w areas 6/16, N of ramp, S of shoulder	153.4	92.0	7.2	7.2
20	BCd	40	6	1	11/8/2003	effective basin	39.3		4.5	3.0
20	BCe	40	6	1	11/8/2003	effective basin	29.4		3.5	1.8
20	AT	2	0	0	11/9/2003	effective basin	63.6	53.2	6.7	5.1
20	BTg	70	10	2	11/11/2003	effective basin	78.4	19.1		4.3
20	BTh	70	10	2	11/11/2003	effective basin	27.2	19.0		3.1
7	AA	160	23	5	11/12/2003	rest area	40.9	25.0	2.0	2.9
8	CA	160	23	5	11/12/2003	rest area, near E BC	125.2	58.5	11.2	14.4
8	AB	35	5	1	11/13/2003	west of rest area, runoff slope	64.3		7.4	9.7
21	BE	35	5	1	11/13/2003	effective basin	22.3		2.6	1.9
20	BTf	68	10	2	11/13/2003	effective basin	21.4	17.9		3.6
11	AK	240	34	8	11/16/2003	@ E BC, east of median 13 area	77.7	60.1	4.4	2.5
21	BTa	65	9	2	11/16/2003	effective basin	31.2	38.7		3.4
21	BTb	65	9	2	11/16/2003	effective basin	56.0	49.6		5.2
21	BTc	65	9	2	11/16/2003	effective basin	54.2	47.1		5.9
21	BTd	65	9	2	11/16/2003	effective basin	39.6	35.0		5.2
20	BTe	65	9	2	11/16/2003	effective basin	29.5	25.9		3.8
21	CB	240	34	8	11/16/2003	N of WB lane, near 4 UG wells across rd	130.0	76.6	8.1	7.7
9	AC	190	27	6	11/17/2003	b/w areas 6/16, N of ramp, S of shoulder	32.1	20.7	2.0	2.9
20	BCi	30	4	1	11/18/2003	effective basin	74.1		6.7	5.4
22	BG	30	4	1	11/18/2003	N of WB lane, near 4 UG wells across rd	102.0		7.5	6.6
12	AG	130	19	4	11/21/2003	area 12 (south shoulder of EB lane)	595.7	429.1	11.4	11.6
9	AD	150	21	5	11/22/2003	b/w areas 6/16, N of ramp, S of shoulder	84.5	54.0	5.2	7.3
20	BTj	90	13	3	11/26/2003	effective basin	16.4	18.2	0.7	0.6
19	BCa	20	3	1	11/28/2003	effective basin	24.3		3.9	2.0
19	BCb	20	3	1	11/28/2003	effective basin	37.5		5.0	3.8
20	BCc	20	3	1	11/28/2003	effective basin	77.8		6.9	5.6
21	BD	20	3	1	11/28/2003	effective basin	16.0		1.3	0.9
14	AF	120	17	4	12/1/2003	area 12 (south shoulder of EB lane)	499.8	285.6	20.8	19.7
15	AO	50	7	2	12/1/2003	near BO cluster, not "effective" area	47.7	51.8		1.2
20	BTk	50	7	2	12/1/2003	effective basin	43.8	48.4		2.9
21	BZ	120	17	4	12/1/2003	effective basin	57.0	24.8	5.4	5.4
20	BCf	15	2	1	12/3/2003	effective basin	28.9		3.5	3.5
12	AJ	11	2	0	12/7/2003	crest of basin, comes down slope	16.1		1.2	0.8
20	BMc	11	2	0	12/7/2003	effective basin	45.4		4.0	3.8
19	BMd	10	1	0	12/8/2003	effective basin	127.6		8.4	7.2
19	BN	10	1	0	12/8/2003	effective basin	43.5		2.6	2.6
21	BCj	42	6	1	12/9/2003	effective basin	107.0	64.3		3.7
20	BMb	9	1	0	12/9/2003	effective basin	579.1		48.5	32.8
20	BCd	40	6	1	12/11/2003	effective basin	107.9	69.8		6.9
20	BCe	40	6	1	12/11/2003	effective basin	21.4	20.0		1.1
19	BMa	7	1	0	12/11/2003	effective basin	704.4		51.3	33.1
12	AG	130	19	4	12/12/2003	area 12 (south shoulder of EB lane)	96.1	85.1	1.0	1.1
9	AC	190	27	6	12/15/2003	b/w areas 6/16, N of ramp, S of shoulder	79.0	55.4	3.9	4.4
11	AK	240	34	8	12/16/2003	@ E BC, east of median 13 area	83.2	62.1	4.2	2.4
14	AN	210	30	7	12/16/2003	area 12 (south shoulder of EB lane)	NS	98.1	6.6	5.7
20	AT	2	0	0	12/16/2003	effective basin	262.4		18.9	12.2
21	BE	35	5	1	12/16/2003	effective basin	357.2	220.7		8.0
20	BTg	70	10	2	12/16/2003	effective basin	145.9	107.2	7.6	4.4
20	BTh	70	10	2	12/16/2003	effective basin	34.5	30.6	3.4	1.8
21	CB	240	34	8	12/16/2003	N of WB lane, near 4 UG wells across rd	121.8	82.1	7.0	6.5
8	CA	160	23	5	12/17/2003	rest area, near E BC	101.9	56.2	8.7	10.3
21	BTf	68	10	2	12/18/2003	effective basin	150.3	103.5	8.0	5.0
18	AP	30	4	1	12/21/2003	effective basin	50.5	51.0		2.4
20	BCi	30	4	1	12/21/2003	effective basin	270.7	165.6		11.0
22	BG	30	4	1	12/21/2003	N of WB lane, near 4 UG wells across rd	96.2	69.4		6.9
20	BTa	65	9	2	12/21/2003	effective basin	122.2	69.6	12.9	9.7
19	BTb	65	9	2	12/21/2003	effective basin	666.9	297.5	71.8	44.8
21	BTc	65	9	2	12/21/2003	effective basin	566.3	302.7	48.3	22.9
21	BTd	65	9	2	12/21/2003	effective basin	798.2	404.1	60.7	30.9
21	BTe	65	9	2	12/21/2003	effective basin	290.3	194.9	13.3	8.4
14	AF	120	17	4	12/22/2003	area 12 (south shoulder of EB lane)	449.3	271.3	13.1	13.2
21	BZ	120	17	4	12/22/2003	effective basin	121.9	54.1	9.5	10.0
10	AI	200	29	7	12/26/2003	b/w areas 6/16, N of ramp, S of shoulder	60.3	41.9	3.7	4.8
20	BCg	25	4	1	12/26/2003	effective basin	767.9	344.2		61.9
9	AD	150	21	5	12/27/2003	b/w areas 6/16, N of ramp, S of shoulder	89.8	52.1	4.4	5.1
13	AH	90	13	3	12/31/2003	area 12 (south shoulder of EB lane)	407.1	272.4	13.8	13.5
19	BCa	20	3	1	12/31/2003	effective basin	640.5	376.7		11.6
19	BCb	20	3	1	12/31/2003	effective basin	690.9	387.7		30.5
20	BCc	20	3	1	12/31/2003	effective basin	618.9	331.9		30.9
21	BD	20	3	1	12/31/2003	effective basin	648.5	336.3		35.3
20	BTj	90	13	3	12/31/2003	effective basin	99.1	45.7	6.4	5.3
20	BCh	17	2	1	1/2/2004	effective basin	545.1	240.6		37.9
15	AO	50	7	2	1/5/2004	near BO cluster, not "effective" area	68.6	62.1	2.3	1.5
20	BCf	15	2	1	1/5/2004	effective basin	661.9	317.5		36.4
20	BTk	50	7	2	1/5/2004	effective basin	37.3	57.1	5.3	2.7
12	AJ	11	2	0	1/9/2004	crest of basin, comes down slope	15.3	27.2		0.8
20	BMc	11	2	0	1/9/2004	effective basin	13.4	16.2		1.3
16	AS	80	11	3	1/10/2004	area 12 (south shoulder of EB lane)	432.6	282.8	15.8	15.0
19	BMd	10	1	0	1/10/2004	effective basin	15.9	14.6		1.0
19	BN	10	1	0	1/10/2004	effective basin	17.7	20.8		0.9
20	BMb	9	1	0	1/11/2004	effective basin	14.4	13.9		3.2
21	BCJ	42	6	1	1/13/2004	effective basin	262.9	129.3	21.3	17.3

Row	Well	Travel time days	wks	mos	origin date	Origin	Cl- Conc. (mg/L)	Na+ Conc. (mg/L)	Ca+2 Conc. (mg/L)	Mg+2 Conc. (mg/L)
20	BCc	20	3	1	11/29/2002	effective basin	3.5	7.7		
15	AO	50	7	2	12/2/2002	near BO cluster, not "effective" area	14.5	15.8	4.3	4.4
16	AS	80	11	3	12/2/2002	area 12 (south shoulder of EB lane)	362.6	179.9	37.9	28.0
20	BMe	17	2	1	12/2/2002	effective basin	17.9	14.3		
22	AQ	330	47	11	12/4/2002	N of WB lane, near 4 UG wells across rd	143.5	91.7	9.0	6.0
9	AC	190	27	6	12/7/2002	b/tw areas 6/16, N of ramp, S of shoulder	12.5	9.0		0.74
20	BMc	11	2	0	12/8/2002	effective basin	995.8	519.7		
20	BN	10	1	0	12/9/2002	effective basin	761.2	438.8		
21	BCj	42	6	1	12/10/2002	effective basin	406.9	254.3	0.0	7.0
20	BCe	40	6	1	12/12/2002	effective basin	404.2	203.0	21.5	18.1
19	BMa	7	1	0	12/12/2002	effective basin	373.0	252.6		
20	BTg	70	10	2	12/12/2002	effective basin	495.1	319.9	30.2	17.7
20	BTh	70	10	2	12/12/2002	effective basin	551.2	293.3	23.0	21.1
12	AG	130	19	4	12/14/2002	area 12 (south shoulder of EB lane)	140.5	102.5	6.6	4.3
20	BTf	68	10	2	12/14/2002	effective basin	578.3	355.5	39.6	20.5
22	AQ	330	47	11	12/16/2002	N of WB lane, near 4 UG wells across rd	159.0	102.7	8.6	5.7
20	AT	2	0	0	12/17/2002	effective basin	620.4	415.7		
21	BE	35	5	1	12/17/2002	effective basin	403.2	259.8	20.3	13.0
21	BTb	65	9	2	12/17/2002	effective basin	231.8	54.7	44.5	40.0
21	BTc	65	9	2	12/17/2002	effective basin	267.6	66.2	41.2	44.6
21	BTd	65	9	2	12/17/2002	effective basin	558.0	234.3	64.6	53.0
20	BTe	65	9	2	12/17/2002	effective basin	487.3	321.6	32.2	19.3
22	BG	30	4	1	12/22/2002	N of WB lane, near 4 UG wells across rd	23.9	19.0	0.0	6.7
14	AF	120	17	4	12/24/2002	area 12 (south shoulder of EB lane)	62.3	33.3	6.8	6.8
21	BZ	120	17	4	12/24/2002	effective basin	392.9	183.7	41.2	38.4
15	AO	50	7	2	1/1/2003	near BO cluster, not "effective" area	10.7	15.9	3.2	3.6
19	BCa	20	3	1	1/1/2003	effective basin	201.9	147.2	4.5	3.9
19	BCb	20	3	1	1/1/2003	effective basin	197.0	121.6	0.0	8.0
20	BCc	20	3	1	1/1/2003	effective basin	344.8	216.4	0.0	14.6
21	BD	20	3	1	1/1/2003	effective basin	435.1	259.8	34.5	34.7
20	BTk	50	7	2	1/1/2003	effective basin	18.3	23.2	5.2	4.9
20	BCh	17	2	1	1/4/2003	effective basin	415.2	253.7	0.0	16.2
20	BMe	17	2	1	1/4/2003	effective basin	30.9	15.8	0.0	1.5
7	AA	160	23	5	1/6/2003	rest area	11.1	5.9		1.68
20	BCf	15	2	1	1/6/2003	effective basin	108.6	77.7	6.8	5.2
21	BCj	42	6	1	1/9/2003	effective basin	29.3	40.1	1.4	1.2
20	BCd	40	6	1	1/11/2003	effective basin	32.7	42.0	2.3	1.9
20	BCe	40	6	1	1/11/2003	effective basin	34.5	25.4	2.3	2.1
19	BN	10	1	0	1/11/2003	effective basin	231.9	172.0	18.4	13.8
20	BMb	9	1	0	1/12/2003	effective basin	23.1	19.7	0.0	5.6
19	BMa	7	1	0	1/14/2003	effective basin	17.6	19.6	0.0	5.2
24	AR	300	43	10	1/15/2003	N of WB lane, N of median 8	109.6	76.1	7.5	7.3
8	AB	35	5	1	1/16/2003	west of rest area, runoff slope	21.7	14.2	1.4	2.9
9	AD	150	21	5	1/16/2003	b/tw areas 6/16, N of ramp, S of shoulder	25.4	17.9		2.24
20	AT	2	0	0	1/19/2003	effective basin	73.9	37.7	0.0	7.9
11	AK	240	34	8	1/21/2003	@ E BC, east of median 13 area	50.1	23.3		
18	AP	30	4	1	1/21/2003	effective basin	27.0	22.8	8.1	9.0
20	BCi	30	4	1	1/21/2003	effective basin	28.5	45.6	1.2	0.8
22	BG	30	4	1	1/21/2003	N of WB lane, near 4 UG wells across rd	27.7	26.8	6.2	7.1
21	CB	240	34	8	1/21/2003	N of WB lane, near 4 UG wells across rd	119.0	70.6		
22	AQ	330	47	11	1/22/2003	N of WB lane, near 4 UG wells across rd	42.4		2.2	1.5
13	AH	90	13	3	1/23/2003	area 12 (south shoulder of EB lane)	230.6	155.7	7.9	7.2
20	BTj	90	13	3	1/23/2003	effective basin	720.4	371.3	33.4	42.0
20	BCg	25	4	1	1/26/2003	effective basin	262.5	207.7	15.7	12.6
19	BCa	20	3	1	1/31/2003	effective basin	344.4	224.5	22.1	17.1
19	BCb	20	3	1	1/31/2003	effective basin	869.3	537.5	91.0	73.4
20	BCc	20	3	1	1/31/2003	effective basin	152.9	140.4	9.9	7.5
21	BD	20	3	1	1/31/2003	effective basin	309.2	226.9	27.6	21.4
16	AS	80	11	3	2/2/2003	area 12 (south shoulder of EB lane)	395.0	274.4	11.7	8.0
20	BCh	17	2	1	2/3/2003	effective basin	471.7	304.0	38.2	33.8
12	AG	130	19	4	2/5/2003	area 12 (south shoulder of EB lane)	82.0	45.3		7.95
20	BCf	15	2	1	2/5/2003	effective basin	268.3	198.3	16.7	14.4
20	BMc	11	2	0	2/9/2003	effective basin	100.6	45.6	14.6	10.6
19	BMd	10	1	0	2/10/2003	effective basin	31.5	16.7	3.4	4.0
20	BMb	9	1	0	2/11/2003	effective basin	91.2	58.4	11.4	7.9
20	BTg	70	10	2	2/12/2003	effective basin	87.3	57.7	3.4	4.1
20	BTh	70	10	2	2/12/2003	effective basin	214.4	87.4	14.7	16.4
19	BMa	7	1	0	2/13/2003	effective basin	332.0	132.9	53.0	40.8
20	BTf	68	10	2	2/14/2003	effective basin	103.1	77.8	4.6	4.2
21	BZ	120	17	4	2/15/2003	effective basin	127.6	61.9		10.36
21	BTa	65	9	2	2/17/2003	effective basin	566.9	373.2	45.7	33.5
21	BTb	65	9	2	2/17/2003	effective basin	758.4	452.2	61.6	52.0
21	BTc	65	9	2	2/17/2003	effective basin	547.8	347.4	43.7	39.5
21	BTd	65	9	2	2/17/2003	effective basin	391.9	252.8	25.8	26.8
20	BTe	65	9	2	2/17/2003	effective basin	207.4	125.3	8.9	10.7
20	AT	2	0	0	2/18/2003	effective basin	210.1	100.1	25.1	24.3
24	AR	300	43	10	2/21/2003	N of WB lane, N of median 8	12.9		1.2	1.0
22	AQ	330	47	11	2/24/2003	N of WB lane, near 4 UG wells across rd	17.7	23.3		1.1
10	AI	200	29	7	3/2/2003	b/tw areas 6/16, N of ramp, S of shoulder	57.3	17.5		
11	AK	240	34	8	3/4/2003	@ E BC, east of median 13 area	112.2	45.5	12.2	10.4
15	AO	50	7	2	3/4/2003	near BO cluster, not "effective" area	234.4	95.3	25.2	23.5
20	BTk	50	7	2	3/4/2003	effective basin	442.2	233.4	33.6	31.6
21	CB	240	34	8	3/4/2003	N of WB lane, near 4 UG wells across rd	82.7	53.3	7.4	6.5
9	AC	190	27	6	3/12/2003	b/tw areas 6/16, N of ramp, S of shoulder	45.8	27.8		
21	BCj	42	6	1	3/12/2003	effective basin	532.3	303.6	29.6	24.3
20	BCd	40	6	1	3/14/2003	effective basin	135.4	102.4	2.9	5.0
20	BCe	40	6	1	3/14/2003	effective basin	276.4	205.3	8.3	7.6

Row	Well	Travel time days	wks	mos	origin date	Origin	Cl- Conc. (mg/L)	Na+ Conc. (mg/L)	Ca+2 Conc. (mg/L)	Mg+2 Conc. (mg/L)
7	AA	160	23	5	1/14/2004	rest area	29.9	18.4	2.5	2.4
8	CA	160	23	5	1/14/2004	rest area, near E BC	161.7	79.2	12.2	15.7
14	AN	210	30	7	1/15/2004	area 12 (south shoulder of EB lane)	128.1	83.3	3.8	3.7
20	BCd	40	6	1	1/15/2004	effective basin	1571.9	1001.6	55.9	38.6
20	BCe	40	6	1	1/15/2004	effective basin	1826.9	1131.3	68.3	51.4
12	AG	130	19	4	1/16/2004	area 12 (south shoulder of EB lane)	79.8	74.4	2.8	3.0
8	AB	35	5	1	1/20/2004	west of rest area, runoff slope	69.0	49.7	1.6	4.1
21	BE	35	5	1	1/20/2004	effective basin	2549.3	1560.8	105.3	71.3
20	BTg	70	10	2	1/20/2004	effective basin	129.3	92.1	3.1	1.9
20	BTh	70	10	2	1/20/2004	effective basin	226.4	117.6	12.3	8.6
13	AH	90	13	3	1/21/2004	area 12 (south shoulder of EB lane)	105.2	83.9	2.0	2.2
20	BTj	90	13	3	1/21/2004	effective basin	1053.6	513.9	34.0	25.0
20	BTf	68	10	2	1/22/2004	effective basin	305.1	212.3	7.2	4.6
10	AI	200	29	7	1/25/2004	b/tw areas 6/16, N of ramp, S of shoulder	52.5	35.2	2.8	3.5
18	AP	30	4	1	1/25/2004	effective basin	132.0	74.0	11.4	9.6
20	BCi	30	4	1	1/25/2004	effective basin	1577.9	973.5	67.3	45.9
22	BG	30	4	1	1/25/2004	N of WB lane, near 4 UG wells across rd	85.0	54.1	7.4	7.0
21	BTa	65	9	2	1/25/2004	effective basin	31.2	43.8	5.9	4.7
21	BTb	65	9	2	1/25/2004	effective basin	69.9	61.8	4.4	3.0
21	BTc	65	9	2	1/25/2004	effective basin	382.0	237.8	21.9	14.3
21	BTd	65	9	2	1/25/2004	effective basin	694.4	400.6	31.1	19.1
20	BTe	65	9	2	1/25/2004	effective basin	426.6	255.6	16.1	10.0
14	AF	120	17	4	1/26/2004	area 12 (south shoulder of EB lane)	210.0	165.4	3.6	3.4
21	BZ	120	17	4	1/26/2004	effective basin	164.7	97.7	6.8	7.2
11	AK	240	34	8	1/27/2004	@ E BC, east of median 13 area	60.1	48.0	3.6	1.7
21	CB	240	34	8	1/27/2004	N of WB lane, near 4 UG wells across rd	71.4	49.9	3.3	2.7
20	BCg	25	4	1	1/30/2004	effective basin	1010.7	647.9	35.4	25.7
16	AS	80	11	3	1/31/2004	area 12 (south shoulder of EB lane)	135.4	99.0	2.7	2.6
9	AC	190	27	6	2/4/2004	b/tw areas 6/16, N of ramp, S of shoulder	44.1	32.0	2.8	4.0
19	BCa	20	3	1	2/4/2004	effective basin	847.4	558.5	22.8	14.4
19	BCb	20	3	1	2/4/2004	effective basin	692.8	434.1	25.8	17.8
20	BCc	20	3	1	2/4/2004	effective basin	530.7	307.6	31.6	21.6
21	BD	20	3	1	2/4/2004	effective basin	816.6	539.2	17.5	13.2
8	CA	160	23	5	2/4/2004	rest area, near E BC	11.9	38.3	4.9	6.9
20	BCh	17	2	1	2/7/2004	effective basin	906.2	559.6	24.2	17.7
15	AO	50	7	2	2/9/2004	near BO cluster, not "effective" area	66.5	55.5	2.5	1.8
20	BCf	15	2	1	2/9/2004	effective basin	620.4	385.5	15.0	8.6
20	BTg	70	10	2	2/10/2004	effective basin	658.6	282.4	30.1	23.9
20	BTh	70	10	2	2/10/2004	effective basin	969.3	522.1	31.7	26.1
20	BTf	68	10	2	2/12/2004	effective basin	496.7	305.5	10.0	5.7
12	AG	130	19	4	2/13/2004	area 12 (south shoulder of EB lane)	65.2	49.0	5.9	6.2
12	AJ	11	2	0	2/13/2004	crest of basin, comes down slope	109.9	68.9	6.0	5.1
19	BMd	10	1	0	2/14/2004	effective basin	773.7	503.2	30.0	28.4
21	BTa	65	9	2	2/15/2004	effective basin	78.0	52.5	6.1	4.8
21	BTb	65	9	2	2/15/2004	effective basin	412.8	194.7	32.6	25.8
21	BTc	65	9	2	2/15/2004	effective basin	253.5	141.3	13.4	10.4
21	BTd	65	9	2	2/15/2004	effective basin	379.3	225.0	11.7	8.2
20	BTe	65	9	2	2/15/2004	effective basin	555.6	325.6	13.8	9.7
21	BCj	42	6	1	2/17/2004	effective basin	513.2	384.4	9.0	6.9
20	BCd	40	6	1	2/19/2004	effective basin	1144.1	718.0	43.5	33.2
20	BCe	40	6	1	2/19/2004	effective basin	1345.5	878.0	40.6	31.6
14	AF	120	17	4	2/23/2004	area 12 (south shoulder of EB lane)	129.4	110.3	1.7	1.5
21	BZ	120	17	4	2/23/2004	effective basin	409.6	234.6	18.5	16.9
8	AB	35	5	1	2/24/2004	west of rest area, runoff slope	36.3	26.0	1.2	3.4
21	BE	35	5	1	2/24/2004	effective basin	359.3	253.0	5.0	3.7
13	AH	90	13	3	2/25/2004	area 12 (south shoulder of EB lane)	197.7	123.9	12.4	12.3
20	BTj	90	13	3	2/25/2004	effective basin	875.5	571.6	28.1	18.9
18	AP	30	4	1	2/29/2004	effective basin	218.8	120.7	14.7	13.4
20	BCi	30	4	1	2/29/2004	effective basin	1000.1	665.9	27.0	22.7
22	BG	30	4	1	2/29/2004	N of WB lane, near 4 UG wells across rd	67.7	45.1	6.9	6.6
15	AO	50	7	2	3/1/2004	near BO cluster, not "effective" area	42.3	40.1	2.4	1.8
20	BTk	50	7	2	3/1/2004	effective basin	43.4	39.6	4.7	2.4
12	AG	130	19	4	3/5/2004	area 12 (south shoulder of EB lane)	78.2	47.6	7.5	7.1
20	BCg	25	4	1	3/5/2004	effective basin	912.6	684.5	13.8	9.6
8	CA	160	23	5	3/5/2004	rest area, near E BC	59.3	50.5	4.1	4.5
16	AS	80	11	3	3/6/2004	area 12 (south shoulder of EB lane)	188.5	131.5	9.3	8.4
21	BCj	42	6	1	3/9/2004	effective basin	928.8	622.9	40.9	42.6
19	BCa	20	3	1	3/10/2004	effective basin	1229.4	845.6	28.5	21.4
19	BCb	20	3	1	3/10/2004	effective basin	1349.4	944.2	27.7	19.8
20	BCc	20	3	1	3/10/2004	effective basin	1600.4	1056.8	44.7	33.1
21	BD	20	3	1	3/10/2004	effective basin	535.9	359.3	10.0	6.6
20	BCd	40	6	1	3/11/2004	effective basin	1678.3	1064.7	73.8	72.1
20	BCe	40	6	1	3/11/2004	effective basin	1334.1	845.6	61.6	63.9
20	BCh	17	2	1	3/13/2004	effective basin	1066.6	741.7	21.5	13.0
9	AD	150	21	5	3/15/2004	b/tw areas 6/16, N of ramp, S of shoulder	71.6	60.0	3.7	4.3
14	AF	120	17	4	3/15/2004	area 12 (south shoulder of EB lane)	108.9	95.1	1.5	1.3
20	BCf	15	2	1	3/15/2004	effective basin	535.8	381.6	11.8	5.6
21	BZ	120	17	4	3/15/2004	effective basin	34.7	62.3	2.8	2.5
8	AB	35	5	1	3/16/2004	west of rest area, runoff slope	18.5	13.2	1.0	2.6
21	BE	35	5	1	3/16/2004	effective basin	1577.5	1033.8	64.9	61.7
20	BTg	70	10	2	3/16/2004	effective basin	848.3	596.4	11.2	11.0
20	BTh	70	10	2	3/16/2004	effective basin	890.0	643.1	19.0	19.1
20	BTf	68	10	2	3/18/2004	effective basin	604.0	450.7	5.8	4.5
12	AJ	11	2	0	3/19/2004	crest of basin, comes down slope	58.6	37.7	3.4	2.7
20	BMc	11	2	0	3/19/2004	effective basin	195.3	121.9	16.4	11.8
19	BMd	10	1	0	3/20/2004	effective basin	47.4	34.4	5.8	4.6
19	BN	10	1	0	3/20/2004	effective basin	237.4	190.8	9.8	9.2
18	AP	30	4	1	3/21/2004	effective basin	84.7	55.7	4.6	4.1
20	BCi	30	4	1	3/21/2004	effective basin	796.1	533.6	31.2	27.1

Row	Well	Travel time days	wks	mos	origin date	Origin	Cl^{-} Conc. (mg/L)	Na^{+} Conc. (mg/L)	Ca^{+2} Conc. (mg/L)	Mg^{+2} Conc. (mg/L)
11	AK	240	34	8	3/16/2003	@ E BC, east of median 13 area	106.8	47.0	12.5	8.0
21	CB	240	34	8	3/16/2003	N of WB lane, near 4 UG wells across rd	65.4	43.0	6.1	5.2
13	AH	90	13	3	3/17/2003	area 12 (south shoulder of EB lane)	148.2	82.9		9.91
20	BTj	90	13	3	3/17/2003	effective basin	637.1	356.7		10.23
21	BE	35	5	1	3/19/2003	effective basin	1009.4	575.8	62.0	47.7
18	AP	30	4	1	3/24/2003	effective basin	106.3	60.1	9.4	10.6
22	BG	30	4	1	3/24/2003	N of WB lane, near 4 UG wells across rd	67.8	40.3	10.4	11.5
16	AS	80	11	3	3/27/2003	area 12 (south shoulder of EB lane)	30.9	41.6		1.69
20	BCg	25	4	1	3/29/2003	effective basin	85.9	75.5	1.5	2.4
22	AQ	330	47	11	3/31/2003	N of WB lane, near 4 UG wells across rd	23.0	27.8	1.5	1.1
14	AN	210	30	7	4/3/2003	area 12 (south shoulder of EB lane)	34.4	42.5	0.9	0.8
19	BCa	20	3	1	4/3/2003	effective basin	579.1	358.2	34.5	26.2
19	BCb	20	3	1	4/3/2003	effective basin	378.4	278.5	12.3	13.5
21	BD	20	3	1	4/3/2003	effective basin	838.8	498.0	33.3	35.4
20	BCh	17	2	1	4/6/2003	effective basin	118.4	104.2	1.9	3.0
20	BMe	17	2	1	4/5/2003	effective basin	95.6	53.3	6.3	7.1
20	BTg	70	10	2	4/6/2003	effective basin	233.6	154.2		5.07
20	BTh	70	10	2	4/6/2003	effective basin	201.9	133.4		4.89
20	BTf	68	10	2	4/8/2003	effective basin	1511.7	763.1		59.1
7	AA	160	23	5	4/11/2003	rest area	143.7	76.6		
21	BTa	65	9	2	4/11/2003	effective basin	768.9	402.2		34.38
21	BTc	65	9	2	4/11/2003	effective basin	1434.7	773.8		44.31
21	BTd	65	9	2	4/11/2003	effective basin	1312.5	718.4		40.95
20	BTe	65	9	2	4/11/2003	effective basin	1633.4	844.9		65.1
8	CA	160	23	5	4/11/2003	rest area, near E BC	25.9	27.0		
12	AJ	11	2	0	4/12/2003	crest of basin, comes down slope	23.5	12.1	5.1	4.3
20	BMc	11	2	0	4/12/2003	effective basin	103.7	55.3	9.2	8.6
10	AI	200	29	7	4/13/2003	b/tw areas 6/16, N of ramp, S of shoulder	45.3	22.8	5.2	8.5
19	BMd	10	1	0	4/13/2003	effective basin	45.8	33.0	3.9	3.4
19	BN	10	1	0	4/13/2003	effective basin	423.2	270.4	31.8	19.3
20	BMb	9	1	0	4/14/2003	effective basin	253.0	124.0	28.4	23.0
14	AN	210	30	7	4/15/2003	area 12 (south shoulder of EB lane)	32.1	43.2	0.7	0.6
19	BMa	7	1	0	4/16/2003	effective basin	232.7	121.0	27.7	23.2
9	AD	150	21	5	4/21/2003	b/tw areas 6/16, N of ramp, S of shoulder	45.4	26.5		
20	AT	2	0	0	4/21/2003	effective basin	145.7	97.0	14.3	15.8
11	AK	240	34	8	4/22/2003	@ E BC, east of median 13 area	44.2		7.4	3.3
21	CB	240	34	8	4/22/2003	N of WB lane, near 4 UG wells across rd	163.2		12.1	11.4
9	AC	190	27	6	4/23/2003	b/tw areas 6/16, N of ramp, S of shoulder	29.3	17.0	2.1	4.8
10	AI	200	29	7	4/25/2003	b/tw areas 6/16, N of ramp, S of shoulder	108.5	43.9	9.2	11.7
15	AO	50	7	2	4/26/2003	near BO cluster, not "effective" area	207.0	126.5		4.12
20	BTk	50	7	2	4/26/2003	effective basin	807.3	410.1		36.99
21	BCj	42	6	1	5/4/2003	effective basin	79.7	44.6		8
9	AC	190	27	6	5/5/2003	b/tw areas 6/16, N of ramp, S of shoulder	56.7	30.2	3.1	6.0
22	AQ	330	47	11	5/5/2003	N of WB lane, near 4 UG wells across rd	150.7	65.2	17.9	11.8
20	BCe	40	6	1	5/5/2003	effective basin	442.9	219.7		43.41
12	AG	130	19	4	5/11/2003	area 12 (south shoulder of EB lane)	171.7	90.1		
18	AP	30	4	1	5/16/2003	effective basin	257.4	133.7		8.5
22	BG	30	4	1	5/15/2003	N of WB lane, near 4 UG wells across rd	91.7	44.6		9.33
14	AF	120	17	4	5/21/2003	area 12 (south shoulder of EB lane)	32.1	41.7		
20	BCg	25	4	1	5/21/2003	effective basin	499.6	233.9		43.97
21	BZ	120	17	4	5/21/2003	effective basin	16.0	26.2		
14	AN	210	30	7	5/22/2003	area 12 (south shoulder of EB lane)	22.2		1.1	0.9
7	AA	160	23	5	5/23/2003	rest area	164.8	85.4	8.3	12.3
8	CA	160	23	5	5/23/2003	rest area, near E BC	151.9	50.8	16.1	21.4
11	AK	240	34	8	5/25/2003	@ E BC, east of median 13 area	44.4	28.6		4.2
21	CB	240	34	8	5/25/2003	N of WB lane, near 4 UG wells across rd	133.3	86.5		7.3
22	AQ	330	47	11	5/26/2003	N of WB lane, near 4 UG wells across rd	154.3	89.7	7.0	4.9
19	BCa	20	3	1	5/26/2003	effective basin	277.4	227.4		2.86
20	BCc	20	3	1	5/26/2003	effective basin	250.6	141.9		19.34
21	BD	20	3	1	5/26/2003	effective basin	387.9	303.6		1.29
20	BCh	17	2	1	5/29/2003	effective basin	154.5	152.1		1.25
20	BMe	17	2	1	5/29/2003	effective basin	16.6	13.8		0.79
12	AJ	11	2	0	6/4/2003	crest of basin, comes down slope	95.1	39.5		9.5
24	AR	300	43	10	6/4/2003	N of WB lane, N of median 8	49.9	24.9	6.1	4.4
8	CA	160	23	5	6/4/2003	rest area, near E BC	129.5	49.5	12.8	17.0
19	BMd	10	1	0	6/5/2003	effective basin	26.8	21.7		1.41
19	BN	10	1	0	6/5/2003	effective basin	253.2	114.1		19.07
20	BMb	9	1	0	6/6/2003	effective basin	699.9	302.2		26.81
19	BMa	7	1	0	6/8/2003	effective basin	175.0	81.4		10.92
9	AC	190	27	6	6/11/2003	b/tw areas 6/16, N of ramp, S of shoulder	128.2		19.8	22.5
20	AT	2	0	0	6/13/2003	effective basin	323.2	181.6		22.65
9	AD	150	21	5	6/14/2003	b/tw areas 6/16, N of ramp, S of shoulder	67.1	NS	NS	NS
13	AH	90	13	3	6/20/2003	area 12 (south shoulder of EB lane)	120.5	73.5		
20	BTj	90	13	3	6/20/2003	effective basin	21.4	19.6		
12	AG	130	19	4	6/22/2003	area 12 (south shoulder of EB lane)	85.6	64.0	4.4	5.0
14	AN	210	30	7	6/24/2003	area 12 (south shoulder of EB lane)	15.8	24.6		0.4
24	AR	300	43	10	6/25/2003	N of WB lane, N of median 8	81.3	36.8	8.7	5.7
11	AK	240	34	8	6/29/2003	@ E BC, east of median 13 area	274.6	156.8	16.9	7.2
21	CB	240	34	8	6/29/2003	N of WB lane, near 4 UG wells across rd	81.4	46.5	8.2	8.6
22	AQ	330	47	11	6/30/2003	N of WB lane, near 4 UG wells across rd	53.7	45.8	2.2	1.5
16	AS	80	11	3	6/30/2003	area 12 (south shoulder of EB lane)	144.0	85.4		
14	AF	120	17	4	7/2/2003	area 12 (south shoulder of EB lane)	72.3	51.4	6.5	5.9
21	BZ	120	17	4	7/2/2003	effective basin	156.3	115.4	4.3	3.1
12	AG	130	19	4	7/4/2003	area 12 (south shoulder of EB lane)	49.5	43.4	3.4	4.2
20	BTh	70	10	2	7/10/2003	effective basin	23.8	25.6		
8	CA	160	23	5	7/11/2003	rest area, near E BC	43.2		4.6	6.3
20	BTf	65	10	2	7/12/2003	effective basin	19.2	21.6		

Row	Well	Travel time days	wks	mos	origin date	Origin	Cl^{-} Conc. (mg/L)	Na^{+} Conc. (mg/L)	Ca^{+2} Conc. (mg/L)	Mg^{+2} Conc. (mg/L)
22	BG	30	4	1	3/21/2004	N of WB lane, near 4 UG wells across rd	63.5	42.2	6.1	5.8
20	BMb	9	1	0	3/21/2004	effective basin	440.8	290.3	25.5	25.1
21	BTa	65	9	2	3/21/2004	effective basin	446.1	270.9	25.2	19.3
21	BTb	65	9	2	3/21/2004	effective basin	470.0	325.7	8.9	7.4
21	BTc	65	9	2	3/21/2004	effective basin	670.4	454.9	10.8	9.3
21	BTd	65	9	2	3/21/2004	effective basin	511.7	366.3	6.1	4.8
20	BTe	65	9	2	3/21/2004	effective basin	620.5	453.7	5.6	4.2
19	BMa	7	1	0	3/23/2004	effective basin	1392.9	928.3	55.4	65.9
13	AH	90	13	3	3/24/2004	area 12 (south shoulder of EB lane)	171.8	94.8	14.8	14.1
20	BTj	90	13	3	3/24/2004	effective basin	669.8	498.6	18.2	16.5
20	BCg	25	4	1	3/26/2004	effective basin	853.9	530.2	22.0	19.4
20	AT	2	0	0	3/28/2004	effective basin	139.4	96.8	11.7	10.9
19	BCa	20	3	1	3/31/2004	effective basin	1117.8	715.9	29.7	24.6
19	BCb	20	3	1	3/31/2004	effective basin	1303.5	841.9	35.2	27.0
20	BCc	20	3	1	3/31/2004	effective basin	858.5	544.5	25.7	18.8
21	BD	20	3	1	3/31/2004	effective basin	490.9	330.1	8.7	5.9
16	AS	80	11	3	4/3/2004	area 12 (south shoulder of EB lane)	126.4	95.9	8.7	7.8
20	BCh	17	2	1	4/3/2004	effective basin	694.4	461.5	8.8	5.3
20	BMe	17	2	1	4/3/2004	effective basin	31.9	21.9	3.4	2.4
12	AG	130	19	4	4/4/2004	area 12 (south shoulder of EB lane)	135.9	59.5	13.3	11.8
15	AO	50	7	2	4/5/2004	near BO cluster, not "effective" area	253.9	144.5	11.6	9.9
20	BCf	15	2	1	4/5/2004	effective basin	1106.1	655.3	37.9	29.1
20	BTk	50	7	2	4/5/2004	effective basin	97.6	75.7	7.6	3.8
12	AJ	11	2	0	4/9/2004	crest of basin, comes down slope	68.7	40.2	3.6	2.9
20	BMc	11	2	0	4/9/2004	effective basin	42.1	37.2	4.1	2.8
19	BMd	10	1	0	4/10/2004	effective basin	40.6	26.0	4.5	3.1
19	BN	10	1	0	4/10/2004	effective basin	795.6	513.5	32.1	33.7
20	BMb	9	1	0	4/11/2004	effective basin	66.6	68.1	4.1	3.8
21	BCj	42	6	1	4/13/2004	effective basin	40.1	58.4	1.7	2.0
19	BMa	7	1	0	4/13/2004	effective basin	162.5	135.7	2.9	4.3
20	BTg	70	10	2	4/13/2004	effective basin	431.9	335.6	6.4	7.2
20	BTh	70	10	2	4/13/2004	effective basin	267.8	217.0	8.9	9.4
14	AF	120	17	4	4/14/2004	area 12 (south shoulder of EB lane)	130.2	101.4	4.2	4.2
13	AH	90	13	3	4/14/2004	area 12 (south shoulder of EB lane)	165.7	117.2	16.0	13.3
20	BTj	90	13	3	4/14/2004	effective basin	112.5	106.0	1.9	1.8
21	BZ	120	17	4	4/14/2004	effective basin	81.2	53.0	3.3	2.9
20	BCd	40	6	1	4/15/2004	effective basin	165.2	159.6	3.6	4.0
20	BCe	40	6	1	4/15/2004	effective basin	80.0	90.4	0.0	3.1
20	BTf	65	10	2	4/15/2004	effective basin	240.9	211.1	2.1	1.9
8	CA	160	23	5	4/16/2004	rest area, near E BC	43.6	45.8	2.7	3.3
20	AT	2	0	0	4/18/2004	effective basin	110.0	65.6	11.1	9.7
21	BTa	65	9	2	4/18/2004	effective basin	363.5	254.3	13.2	9.9
21	BTc	65	9	2	4/18/2004	effective basin	506.7	359.4	8.0	7.9
21	BTd	65	9	2	4/18/2004	effective basin	374.8	301.8	3.9	3.5
20	BTe	65	9	2	4/18/2004	effective basin	308.3	265.7	2.6	2.2
8	AB	35	5	1	4/20/2004	west of rest area, runoff slope	17.6	14.4	1.5	3.2
21	BE	35	5	1	4/20/2004	effective basin	21.1	32.9	1.9	2.7
16	AS	80	11	3	4/24/2004	area 12 (south shoulder of EB lane)	189.5	133.3	16.1	13.9
18	AP	30	4	1	4/25/2004	effective basin	516.3	334.2	15.6	12.0
20	BCi	30	4	1	4/25/2004	effective basin	165.2	137.9	4.9	5.4
22	BG	30	4	1	4/25/2004	N of WB lane, near 4 UG wells across rd	117.5	61.2	10.8	10.8
20	BCg	25	4	1	4/30/2004	effective basin	937.1	631.5	29.8	27.2
20	BTk	50	7	2	5/3/2004	effective basin	99.8	67.4	6.2	2.8
20	BTg	70	10	2	5/4/2004	effective basin	40.5	48.6	0.3	0.2
19	BCa	20	3	1	5/5/2004	effective basin	321.9	236.2	5.4	4.7
21	BD	20	3	1	5/5/2004	effective basin	348.6	267.7	4.3	3.4
20	BCh	17	2	1	5/8/2004	effective basin	330.9	248.8	3.9	3.4
20	BMe	17	2	1	5/8/2004	effective basin	77.9	54.8	3.2	2.4
21	BTb	65	9	2	5/9/2004	effective basin	73.7	93.2	1.2	0.8
21	BTd	65	9	2	5/9/2004	effective basin	70.9	91.8	0.5	0.4
20	BTe	65	9	2	5/9/2004	effective basin	40.9	54.3	0.2	0.1
20	BCf	15	2	1	5/10/2004	effective basin	581.8	429.1	10.4	9.7
21	BCj	42	6	1	5/11/2004	effective basin	34.6	24.7	5.4	6.5
20	BCd	40	6	1	5/13/2004	effective basin	261.5	121.8	27.4	30.1
20	BCe	40	6	1	5/13/2004	effective basin	294.7	125.5	28.2	29.2
13	AH	90	13	3	5/14/2004	area 12 (south shoulder of EB lane)	226.2	133.3	13.8	12.9
12	AJ	11	2	0	5/14/2004	crest of basin, comes down slope	221.1	120.3	11.8	8.7
20	BMc	11	2	0	5/14/2004	effective basin	60.6	33.5	5.5	3.9
20	BTj	90	13	3	5/14/2004	effective basin	126.3	92.9	1.2	1.9
19	BMd	10	1	0	5/15/2004	effective basin	382.4	197.8	24.5	17.6
19	BN	10	1	0	5/15/2004	effective basin	54.8	25.8	10.1	9.7
12	AG	130	19	4	5/16/2004	area 12 (south shoulder of EB lane)	147.5	66.0	13.3	11.4
20	BMb	9	1	0	5/16/2004	effective basin	457.6	262.0	23.9	19.5
8	AB	35	5	1	5/18/2004	west of rest area, runoff slope	25.3	17.0	2.1	3.7
21	BE	35	5	1	5/18/2004	effective basin	128.7	51.4	16.0	22.9
19	BMa	7	1	0	5/18/2004	effective basin	536.1	317.6	28.0	20.8
18	AP	30	4	1	5/23/2004	effective basin	284.3	202.0	5.6	3.7
20	AT	2	0	0	5/23/2004	effective basin	370.5	213.4	23.7	19.1
20	BCi	30	4	1	5/23/2004	effective basin	166.4	72.3	20.8	24.3
22	BG	30	4	1	5/23/2004	N of WB lane, near 4 UG wells across rd	138.7	92.0	13.1	13.0
15	AO	50	7	2	5/24/2004	near BO cluster, not "effective" area	183.3	120.0	5.0	4.1
16	AS	80	11	3	5/24/2004	area 12 (south shoulder of EB lane)	218.4	125.4	16.4	13.0
21	BZ	120	17	4	5/26/2004	effective basin	70.6	51.4	4.4	4.0
20	BCg	25	4	1	5/28/2004	effective basin	327.4	277.8	3.6	3.2
19	BCa	20	3	1	6/2/2004	effective basin	240.0	155.8	3.3	2.9
19	BCb	20	3	1	6/2/2004	effective basin	329.1	241.2	4.8	4.1
20	BCc	20	3	1	6/2/2004	effective basin	194.6	88.6	22.4	27.4
21	BD	20	3	1	6/2/2004	effective basin	105.5	119.4	1.2	0.9

Row	Well	Travel time days	wks	mos	origin date	Origin	Cl- Conc. (mg/L)	Na+ Conc. (mg/L)	Ca+2 Conc. (mg/L)	Mg+2 Conc. (mg/L)
9	AC	190	27	6	7/14/2003	b/w areas 6/16, N of ramp, S of shoulder	19.0	16.4		0.5
21	BZ	120	17	4	7/14/2003	effective basin	147.9	110.7	5.6	4.2
21	BTa	65	9	2	7/15/2003	effective basin	214.8	169.9		
21	BTb	65	9	2	7/15/2003	effective basin	33.0	49.7		
21	BTc	65	9	2	7/15/2003	effective basin	32.4	35.5		
21	BTd	65	9	2	7/15/2003	effective basin	27.8	38.5		
20	BTe	65	9	2	7/15/2003	effective basin	26.1	38.3		
9	AD	150	21	5	7/21/2003	b/w areas 6/16, N of ramp, S of shoulder	352.3		59.2	63.2
14	AN	210	30	7	7/29/2003	area 12 (south shoulder of EB lane)	22.7	27.8	0.4	0.4
15	AO	50	7	2	7/30/2003	near BO cluster, not "effective" area	37.4	54.4		
24	AR	300	43	10	7/30/2003	N of WB lane, N of median 8	11.5	9.3	1.2	0.9
20	BTk	50	7	2	7/30/2003	effective basin	60.1	81.8		
13	AH	90	13	3	8/1/2003	area 12 (south shoulder of EB lane)	16.4	24.3	2.3	1.9
20	BTj	90	13	3	8/1/2003	effective basin	20.4	22.7	0.5	0.4
11	AK	240	34	8	8/3/2003	@ E BC, east of median 13 area	84.5	49.3	7.8	3.5
21	CB	240	34	8	8/3/2003	N of WB lane, near 4 UG wells across rd	1099.1	679.7	69.9	71.5
21	BCj	42	6	1	8/7/2003	effective basin	84.9	38.0		
10	AI	200	29	7	8/8/2003	b/w areas 6/16, N of ramp, S of shoulder	209.8	152.8	9.1	13.6
20	BCd	40	6	1	8/9/2003	effective basin	27.8	20.5		
20	BCe	40	6	1	8/9/2003	effective basin	20.2	16.2		
12	AG	130	19	4	8/10/2003	area 12 (south shoulder of EB lane)	452.7		31.7	24.8
8	CA	160	23	5	8/13/2003	rest area, near E BC	64.3	40.2		8.5
8	AB	35	5	1	8/14/2003	west of rest area, runoff slope	112.7	56.9		
21	BE	35	5	1	8/14/2003	effective basin	20.9	18.1		
9	AC	190	27	6	8/18/2003	b/w areas 6/16, N of ramp, S of shoulder	18.2	18.2	0.5	0.9
22	AQ	330	47	11	8/18/2003	N of WB lane, near 4 UG wells across rd	43.0	37.8	2.2	1.1
18	AP	30	4	1	8/19/2003	effective basin	104.3	89.2		
20	BCi	30	4	1	8/19/2003	effective basin	40.3	24.5		
22	BG	30	4	1	8/19/2003	N of WB lane, near 4 UG wells across rd	123.7	84.1		
14	AF	120	17	4	8/20/2003	area 12 (south shoulder of EB lane)	72.5		7.6	6.8
21	BZ	120	17	4	8/20/2003	effective basin	98.7		5.2	4.3
20	BTg	70	10	2	8/21/2003	effective basin	114.5	39.5	16.5	13.2
20	BTh	70	10	2	8/21/2003	effective basin	78.2	31.2	12.2	9.8
9	AD	150	21	5	8/23/2003	b/w areas 6/16, N of ramp, S of shoulder	184.0	94.1		20.8
16	AS	80	11	3	8/23/2003	area 12 (south shoulder of EB lane)	8.5	19.0	0.8	0.6
20	BTf	68	10	2	8/23/2003	effective basin	60.0	32.8	10.6	6.7
11	AK	240	34	8	8/24/2003	@ E BC, east of median 13 area	84.8	51.3	6.8	2.7
20	BCg	25	4	1	8/24/2003	effective basin	167.6	124.6		
21	CB	240	34	8	8/24/2003	N of WB lane, near 4 UG wells across rd	329.0	201.2	20.1	21.1
21	BTa	65	9	2	8/26/2003	effective basin	135.5	105.0	6.1	5.1
21	BTb	65	9	2	8/26/2003	effective basin	145.4	67.8	21.1	15.6
21	BTc	65	9	2	8/26/2003	effective basin	122.9	65.2	16.4	12.8
21	BTd	65	9	2	8/26/2003	effective basin	77.7	47.3	11.0	8.1
20	BTe	65	9	2	8/26/2003	effective basin	76.5	40.9	11.9	7.6
24	AR	300	43	10	8/27/2003	N of WB lane, N of median 8	243.3	127.1	13.9	19.1
19	BCa	20	3	1	8/29/2003	effective basin	145.2	112.2		
19	BCb	20	3	1	8/29/2003	effective basin	159.3	111.4		
21	BD	20	3	1	8/29/2003	effective basin	73.7	71.6		
20	BCh	17	2	1	9/1/2003	effective basin	136.7	101.0		
20	BMe	17	2	1	9/1/2003	effective basin	20.3	13.1		
14	AN	210	30	7	9/2/2003	area 12 (south shoulder of EB lane)	21.4	25.0	0.7	0.7
20	BTg	70	10	2	9/2/2003	effective basin	85.7	29.5	13.4	10.0
20	BTh	70	10	2	9/2/2003	effective basin	34.5	23.0	7.1	5.7
20	BCf	15	2	1	9/3/2003	effective basin	118.2	100.3		
20	BTf	68	10	2	9/4/2003	effective basin	34.0	25.8	5.4	3.4
12	AJ	11	2	0	9/7/2003	crest of basin, comes down slope	53.9	50.7		
20	BMc	11	2	0	9/7/2003	effective basin	160.5	69.0		
21	BTa	65	9	2	9/7/2003	effective basin	203.7	136.8	16.8	14.2
21	BTb	65	9	2	9/7/2003	effective basin	153.3	110.5	10.9	7.4
21	BTc	65	9	2	9/7/2003	effective basin	104.1	64.0	11.1	8.6
21	BTd	65	9	2	9/7/2003	effective basin	92.3	48.8	13.4	9.7
20	BTe	65	9	2	9/7/2003	effective basin	67.7	43.4	8.0	4.7
19	BMd	10	1	0	9/8/2003	effective basin	107.5	50.2		
19	BN	10	1	0	9/8/2003	effective basin	45.3	24.8		
20	BMb	9	1	0	9/9/2003	effective basin	94.5	54.8		
15	AO	50	7	2	9/10/2003	near BO cluster, not "effective" area	36.2	48.4	0.8	0.5
20	BTk	50	7	2	9/10/2003	effective basin	85.5	101.1	3.6	2.3
19	BMa	7	1	0	9/11/2003	effective basin	163.5	80.3		
12	AG	130	19	4	9/12/2003	area 12 (south shoulder of EB lane)	255.3	190.8		25.6
10	AI	200	29	7	9/12/2003	b/w areas 6/16, N of ramp, S of shoulder	80.7	59.2	7.3	4.0
20	AT	2	0	0	9/16/2003	effective basin	123.0	85.2		
22	AQ	330	47	11	9/17/2003	N of WB lane, near 4 UG wells across rd	91.3	53.2	8.3	5.5
24	AR	300	43	10	9/17/2003	N of WB lane, N of median 8	284.3	143.9	15.6	20.8
20	CA	160	23	5	9/17/2003	rest area, near E BC	99.7	46.5	10.2	13.9
21	BCj	42	6	1	9/18/2003	effective basin	28.4	18.1	2.0	1.4
13	AH	90	13	3	9/19/2003	area 12 (south shoulder of EB lane)	657.3		21.5	17.4
20	BTj	90	13	3	9/19/2003	effective basin	20.5		1.9	1.8
20	BCd	40	6	1	9/20/2003	effective basin	81.6	37.8	11.1	6.2
20	BCe	40	6	1	9/20/2003	effective basin	35.4	21.3	8.9	4.0
9	AC	190	27	6	9/22/2003	b/w areas 6/16, N of ramp, S of shoulder	61.3	32.2	4.1	6.7
14	AF	120	17	4	9/22/2003	area 12 (south shoulder of EB lane)	49.1	29.1		4.2
15	AO	50	7	2	9/22/2003	near BO cluster, not "effective" area	41.9	52.9	1.0	0.7
20	BTk	50	7	2	9/22/2003	effective basin	179.9	173.7	5.4	4.1
21	BZ	120	17	4	9/22/2003	effective basin	22.1	33.0		0.4
14	AN	210	30	7	9/23/2003	area 12 (south shoulder of EB lane)	32.6	25.5	1.1	1.1
8	AB	35	5	1	9/25/2003	west of rest area, runoff slope	107.2	58.3	6.5	9.4
21	BE	35	5	1	9/25/2003	effective basin	36.5	24.2	2.9	2.1
9	AD	150	21	5	9/27/2003	b/w areas 6/16, N of ramp, S of shoulder	103.5	73.5	6.7	6.7
11	AK	240	34	8	9/28/2003	@ E BC, east of median 13 area	168.5	95.1	11.7	6.3

Row	Well	Travel time days	wks	mos	origin date	Origin	Cl- Conc. (mg/L)	Na+ Conc. (mg/L)	Ca+2 Conc. (mg/L)	Mg+2 Conc. (mg/L)
20	BCd	40	6	1	6/3/2004	effective basin	394.3	244.4	25.1	20.5
20	BCe	40	6	1	6/3/2004	effective basin	227.2	148.5	13.9	11.5
20	BTg	70	10	2	6/3/2004	effective basin	75.9	58.1	8.6	10.1
20	BTh	70	10	2	6/3/2004	effective basin	149.2	84.0	7.7	7.9
20	BCh	17	2	1	6/5/2004	effective basin	206.6	175.7	2.5	2.1
20	BMe	17	2	1	6/5/2004	effective basin	34.7	40.1	1.5	1.3
20	BTf	68	10	2	6/5/2004	effective basin	148.7	93.0	7.1	9.4
20	BCf	15	2	1	6/7/2004	effective basin	279.6	189.5	9.8	8.8
21	BE	35	5	1	6/8/2004	effective basin	21.2	23.6	3.9	4.9
21	BTa	65	9	2	6/8/2004	effective basin	113.4	110.9	2.0	1.3
21	BTb	65	9	2	6/8/2004	effective basin	83.7	65.9	0.6	0.4
21	BTc	65	9	2	6/8/2004	effective basin	39.2	60.0	0.2	0.2
21	BTd	65	9	2	6/8/2004	effective basin	29.5	45.6	0.1	0.0
20	BTe	65	9	2	6/8/2004	effective basin	32.5	49.8	0.1	0.1
12	AJ	11	2	0	6/11/2004	crest of basin, comes down slope	167.5	110.2	4.8	3.7
20	BMc	11	2	0	6/11/2004	effective basin	28.1	23.0	2.2	1.8
19	BMd	10	1	0	6/12/2004	effective basin	179.1	141.8	6.9	5.7
19	BN	10	1	0	6/12/2004	effective basin	638.2	361.3	32.1	23.5
20	BMb	9	1	0	6/13/2004	effective basin	404.7	250.2	15.9	15.9
19	BMa	7	1	0	6/15/2004	effective basin	454.3	329.0	14.9	12.5
20	BCg	25	4	1	6/18/2004	effective basin	285.0	191.6	24.9	27.1
20	AT	2	0	0	6/20/2004	effective basin	327.1	202.9	17.3	17.0
15	AO	50	7	2	6/23/2004	near BO cluster, not "effective" area	221.2	139.8	4.7	4.7
19	BCa	20	3	1	6/23/2004	effective basin	208.8	149.9	6.0	5.7
19	BCb	20	3	1	6/23/2004	effective basin	318.2	249.2	5.7	4.8
20	BCc	20	3	1	6/23/2004	effective basin	100.5	37.5	10.4	12.7
20	BTk	50	7	2	6/23/2004	effective basin	269.5	134.6	15.7	8.3
13	AH	90	13	3	6/25/2004	area 12 (south shoulder of EB lane)	60.5	58.2	3.3	2.9
20	BTj	90	13	3	6/25/2004	effective basin	63.5	55.9	3.1	2.8
20	BMe	17	2	1	6/26/2004	effective basin	13.5	14.9	1.5	1.2
21	BCj	42	6	1	7/1/2004	effective basin	19.0	20.9	3.4	4.3
12	AJ	11	2	0	7/2/2004	crest of basin, comes down slope	249.7	159.9	6.2	4.5
20	BMc	11	2	0	7/2/2004	effective basin	21.1	17.4	1.4	1.0
20	BCd	40	6	1	7/3/2004	effective basin	28.1	23.1	3.3	3.1
20	BCe	40	6	1	7/3/2004	effective basin	18.5	20.0	1.6	1.4
19	BMd	10	1	0	7/3/2004	effective basin	55.9	56.4	3.7	2.9
19	BN	10	1	0	7/3/2004	effective basin	80.5	67.4	5.6	4.1
20	BMb	9	1	0	7/4/2004	effective basin	291.8	189.7	9.3	10.1
19	BMa	7	1	0	7/6/2004	effective basin	264.2	161.8	11.9	16.6
8	AB	35	5	1	7/8/2004	west of rest area, runoff slope	30.5	17.5	2.2	4.1
21	BE	35	5	1	7/8/2004	effective basin	20.9	16.3	6.0	6.3
20	AT	2	0	0	7/11/2004	effective basin	217.9	144.4	10.8	11.2
18	AP	30	4	1	7/13/2004	effective basin	152.8	119.9	1.5	1.0
20	BCi	30	4	1	7/13/2004	effective basin	65.7	51.6	7.7	4.8
22	BG	30	4	1	7/13/2004	N of WB lane, near 4 UG wells across rd	123.9	82.1	6.9	6.6
20	BTg	70	10	2	7/15/2004	effective basin	256.9	172.7	16.0	15.7
20	BTh	70	10	2	7/15/2004	effective basin	71.1	77.8	3.5	3.5
20	BTf	68	10	2	7/17/2004	effective basin	189.2	142.9	9.8	10.2
20	BCg	25	4	1	7/18/2004	effective basin	120.5	72.1	12.2	14.5
21	BTa	65	9	2	7/20/2004	effective basin	135.2	140.0	1.8	1.1
21	BTb	65	9	2	7/20/2004	effective basin	144.3	131.8	3.4	2.6
21	BTd	65	9	2	7/20/2004	effective basin	144.9	107.1	7.5	7.8
20	BTe	65	9	2	7/20/2004	effective basin	110.9	95.9	5.0	5.1
19	BCa	20	3	1	7/23/2004	effective basin	157.1	123.8	7.0	6.6
19	BCb	20	3	1	7/23/2004	effective basin	82.8	72.9	5.3	5.0
20	BCc	20	3	1	7/23/2004	effective basin	34.1	42.2	3.9	3.6
21	BD	20	3	1	7/23/2004	effective basin	143.8	99.7	10.1	12.4
20	BCh	17	2	1	7/26/2004	effective basin	218.1	114.0	21.6	22.5
20	BMe	17	2	1	7/26/2004	effective basin	81.2	34.2	5.7	4.2
20	BCf	15	2	1	7/28/2004	effective basin	142.6	93.8	7.1	7.7
12	AJ	11	2	0	8/1/2004	crest of basin, comes down slope	158.5	106.1	4.0	3.3
20	BMc	11	2	0	8/1/2004	effective basin	19.9	18.5	0.8	0.6
19	BMd	10	1	0	8/2/2004	effective basin	76.8	34.6	5.6	3.7
19	BN	10	1	0	8/2/2004	effective basin	14.0	15.4	2.0	1.4
20	BMb	9	1	0	8/3/2004	effective basin	147.6	70.9	9.4	10.4
19	BMa	7	1	0	8/5/2004	effective basin	109.9	53.5	9.0	11.1
20	AT	2	0	0	8/10/2004	effective basin	164.6	87.2	12.8	14.4
21	BCj	42	6	1	8/12/2004	effective basin	28.0	42.0	1.3	0.9
20	BCd	40	6	1	8/14/2004	effective basin	94.6	63.2	7.1	4.7
21	BE	35	5	1	8/19/2004	effective basin	31.1	28.3	3.0	1.6
20	BCi	30	4	1	8/24/2004	effective basin	189.1	114.3	7.6	5.5
22	BG	30	4	1	8/24/2004	N of WB lane, near 4 UG wells across rd	112.7	98.1	6.1	5.3
20	BCg	25	4	1	8/29/2004	effective basin	117.1	80.7	5.5	6.2
19	BCa	20	3	1	9/3/2004	effective basin	10.2	24.6	0.6	0.5
19	BCb	20	3	1	9/3/2004	effective basin	78.1	64.4	4.1	4.4
21	BD	20	3	1	9/3/2004	effective basin	18.3	29.1	0.7	0.6
20	BMe	17	2	1	9/6/2004	effective basin	239.6	114.5	13.3	11.2
20	BCf	15	2	1	9/8/2004	effective basin	19.8	28.6	0.5	0.4
20	BMc	11	2	0	9/12/2004	effective basin	91.0	64.1	3.9	4.2
19	BMd	10	1	0	9/13/2004	effective basin	185.4	103.2	5.9	6.6
20	BMb	9	1	0	9/14/2004	effective basin	114.6	75.4	7.7	7.5
19	BMa	7	1	0	9/16/2004	effective basin	189.9	112.8	15.1	13.8
20	AT	2	0	0	9/21/2004	effective basin	206.6	133.5	13.4	13.0

Row	Well	Travel time days	wks	mos	origin date	Origin	Cl- Conc. (mg/L)	Na+ Conc. (mg/L)	Ca+2 Conc. (mg/L)	Mg+2 Conc. (mg/L)
21	CB	240	34	8	9/25/2003	N of WB lane, near 4 UG wells across rd	212.1	129.3	13.9	13.6
16	AS	80	11	3	9/29/2003	area 12 (south shoulder of EB lane)	378.9		8.2	6.2
18	AP	30	4	1	9/30/2003	effective basin	48.2	49.9	1.5	0.8
20	BCi	30	4	1	9/30/2003	effective basin	109.0	52.4	8.9	8.1
22	BO	30	4	1	9/30/2003	N of WB lane, near 4 UG wells across rd	101.4	75.6	8.4	7.4
20	BCd	40	6	1	10/2/2003	effective basin	130.5	57.7	13.4	8.2
10	AI	209	29	7	10/3/2003	b/tw areas 6/16, N of ramp, S of shoulder	96.1	65.3	2.7	4.7
20	BCg	25	4	1	10/5/2003	effective basin	111.2	46.5	14.9	13.4
8	AB	35	5	1	10/7/2003	west of rest area, runoff slope	94.3	51.1	5.3	8.7
21	BE	35	5	1	10/7/2003	effective basin	39.8	23.7	3.1	2.2
20	BTg	70	10	2	10/9/2003	effective basin	27.3		5.8	4.1
20	BTh	70	10	2	10/9/2003	effective basin	22.7		5.0	3.8
19	BCa	20	3	1	10/10/2003	effective basin	108.7	80.9	10.3	6.2
19	BCb	20	3	1	10/10/2003	effective basin	154.9	88.5	17.2	13.6
20	BCe	20	3	1	10/10/2003	effective basin	118.1	60.8	12.8	9.2
21	BD	20	3	1	10/10/2003	effective basin	149.2	102.8	13.1	9.1
20	BTf	68	10	2	10/11/2003	effective basin	34.1		5.2	3.7
18	AP	30	4	1	10/12/2003	effective basin	62.1	55.3	2.5	1.6
20	BCi	30	4	1	10/12/2003	effective basin	98.3	57.7	7.7	6.7
22	BO	30	4	1	10/12/2003	N of WB lane, near 4 UG wells across rd	159.2	100.0	10.8	10.0
9	AC	190	27	6	10/13/2003	b/tw areas 6/16, N of ramp, S of shoulder	42.9	23.0	2.4	3.9
20	BCh	17	2	1	10/13/2003	effective basin	130.9	67.4	16.0	10.4
20	BMe	17	2	1	10/13/2003	effective basin	65.4	30.9	5.1	4.7
21	BTa	65	9	2	10/14/2003	effective basin	94.5		13.0	9.5
21	BTb	65	9	2	10/14/2003	effective basin	97.4		13.5	9.6
21	BTc	65	9	2	10/14/2003	effective basin	73.0		9.9	7.5
21	BTd	65	9	2	10/14/2003	effective basin	84.9		10.6	7.7
20	BTe	65	9	2	10/14/2003	effective basin	48.7		6.7	4.5
20	BCf	15	2	1	10/15/2003	effective basin	79.1	62.1	9.0	7.7
24	AR	300	43	10	10/17/2003	N of WB lane, N of median 8	381.9	188.9	20.8	27.3
20	BCg	25	4	1	10/17/2003	effective basin	121.6	58.7	12.6	12.4
12	AJ	11	2	0	10/19/2003	crest of basin, comes down slope	44.0	37.8	1.8	1.2
20	BMc	11	2	0	10/19/2003	effective basin	119.5	63.5	7.6	7.4
19	BMd	10	1	0	10/20/2003	effective basin	94.1	45.8	6.7	5.1
19	BN	10	1	0	10/20/2003	effective basin	121.0	56.0	8.7	7.5
20	BMb	9	1	0	10/21/2003	effective basin	95.9	55.7	11.0	8.6
13	AH	90	13	3	10/22/2003	area 12 (south shoulder of EB lane)	78.5	85.6		5.2
19	BCa	20	3	1	10/22/2003	effective basin	88.3	61.8	11.2	7.0
19	BCb	20	3	1	10/22/2003	effective basin	111.5	63.2	13.5	10.6
20	BCe	20	3	1	10/22/2003	effective basin	130.8	67.3	12.2	8.7
21	BD	20	3	1	10/22/2003	effective basin	134.7	93.1	13.6	9.9
20	BTj	90	13	3	10/22/2003	effective basin	25.0	22.7		1.4
8	CA	160	23	5	10/22/2003	rest area, near E BC	106.1	55.7	9.5	12.6
19	BMa	7	1	0	10/23/2003	effective basin	110.5	65.9	11.1	9.0
20	BCh	17	2	1	10/25/2003	effective basin	150.7	98.2	12.9	9.2
20	BMe	17	2	1	10/25/2003	effective basin	55.8	28.9	3.5	3.3
11	AK	240	34	8	10/26/2003	@ E BC, east of median 13 area	125.9	76.2	7.3	4.3
21	CB	240	34	8	10/26/2003	N of WB lane, near 4 UG wells across rd	309.1	184.2	17.4	16.3
14	AF	120	17	4	10/27/2003	area 12 (south shoulder of EB lane)	418.0	238.2	17.8	16.4
20	BZ	120	17	4	10/27/2003	effective basin	32.4	24.9	3.8	3.6
14	AN	210	30	7	10/28/2003	area 12 (south shoulder of EB lane)	193.7	95.7	12.6	12.2
20	AT	2	0	0	10/28/2003	effective basin	66.3	57.9	7.5	5.3
15	AO	50	7	2	10/29/2003	near BO cluster, not "effective" area	24.3		1.2	0.8
12	AJ	11	2	0	10/31/2003	crest of basin, comes down slope	59.5	47.1	2.1	1.4
20	BMc	11	2	0	10/31/2003	effective basin	169.1	83.0	11.0	11.1

Row	Well	Travel time days	wks	mos	origin date	Origin	Cl- Conc. (mg/L)	Na+ Conc. (mg/L)	Ca+2 Conc. (mg/L)	Mg+2 Conc. (mg/L)

Row	Well	Travel time days	wks	mos	origin date	Origin	Cl^- Conc. (mg/L)	Na^+ Conc. (mg/L)	Ca^{+2} Conc. (mg/L)	Mg^{+2} Conc. (mg/L)	Row	Well	days	Travel time wks	mos	origin date	Origin	Cl^- Conc. (mg/L)	Na^+ Conc. (mg/L)	Ca^{+2} Conc. (mg/L)	Mg^{+2} Conc. (mg/L)

Row	Well	Travel time days	wks	mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm
22	BIpcpA	420.0	56.0	14.0	7/2/2002	by back fence area, runoff b/tw BK/BS	1	6.0	2265.6
22	BIpcpA	420.0	56.0	14.0	7/9/2002	by back fence area, runoff b/tw BK/BS	1	6.0	2725.6
21	BUpcpI	120.0	16.0	4.0	7/15/2002	effective basin	2	-1.6	201.0
21	BZ	120.0	17.1	4.0	7/15/2002	effective basin	1	6.7	418.0
22	BIpcpA	420.0	56.0	14.0	7/25/2002	by back fence area, runoff b/tw BK/BS	1	6.0	2599.3
21	BUpcpA	110.0	14.7	3.7	7/25/2002	effective basin	1	6.0	506.1
21	BUpcpB	110.0	14.7	3.7	7/25/2002	effective basin	2	4.5	269.0
21	BUpcpC	110.0	14.7	3.7	7/25/2002	effective basin	2	3.0	590.0
21	BUpcpD	110.0	14.7	3.7	7/25/2002	effective basin	2	1.5	597.0
21	BUpcpE	110.0	14.7	3.7	7/25/2002	effective basin	2	0.9	301.0
21	BUpcpF	110.0	14.7	3.7	7/25/2002	effective basin	2	0.2	304.0
21	BUpcpG	110.0	14.7	3.7	7/25/2002	effective basin	2	-0.4	280.0
21	BUpcpH	110.0	14.7	3.7	7/25/2002	effective basin	2	-1.0	227.0
20	BTj	90.0	12.9	3.0	8/14/2002	effective basin	2	-3.7	172.0
21	BUpcpI	120.0	16.0	4.0	8/20/2002	effective basin	2	-1.6	159.0
21	BZ	120.0	17.1	4.0	8/21/2002	effective basin	1	6.7	359.0
22	BIpcpA	420.0	56.0	14.0	8/22/2002	by back fence area, runoff b/tw BK/BS	1	6.0	1540.9
20	BTpcpK	80.0	11.4	2.7	8/24/2002	effective basin	2	-4.2	301.0
20	BTpcpJ	75.0	10.7	2.5	8/29/2002	effective basin	2	-2.6	296.0
21	BUpcpA	110.0	14.7	3.7	8/30/2002	effective basin	1	6.0	263.0
21	BUpcpB	110.0	14.7	3.7	8/30/2002	effective basin	2	4.5	191.0
21	BUpcpC	110.0	14.7	3.7	8/30/2002	effective basin	2	3.0	196.0
21	BUpcpD	110.0	14.7	3.7	8/30/2002	effective basin	2	1.5	326.0
21	BUpcpE	110.0	14.7	3.7	8/30/2002	effective basin	2	0.9	301.0
21	BUpcpF	110.0	14.7	3.7	8/30/2002	effective basin	2	0.2	276.0
21	BUpcpG	110.0	14.7	3.7	8/30/2002	effective basin	2	-0.4	222.0
21	BUpcpH	110.0	14.7	3.7	8/30/2002	effective basin	2	-1.0	169.0
20	BTg	70.0	10.0	2.3	9/3/2002	effective basin	2	-0.1	184.0
20	BTh	70.0	10.0	2.3	9/3/2002	effective basin	2	-1.0	157.0
20	BTpcpE	70.0	10.0	2.3	9/3/2002	effective basin	2	1.3	219.0
20	BTpcpF	70.0	10.0	2.3	9/3/2002	effective basin	2	0.7	387.0
20	BTpcpG	70.0	10.0	2.3	9/3/2002	effective basin	2	0.1	448.0
20	BTpcpH	70.0	10.0	2.3	9/3/2002	effective basin	2	-0.5	284.0
20	BTpcpI	70.0	10.0	2.3	9/3/2002	effective basin	2	-1.1	287.0
22	BIpcpA	420.0	56.0	14.0	9/5/2002	by back fence area, runoff b/tw BK/BS	1	6.0	1551.1
20	BTf	68.0	9.7	2.3	9/5/2002	effective basin	2	0.7	234.0
21	BTa	65.0	9.3	2.2	9/8/2002	effective basin	1	5.4	219.0
21	BTb	65.0	9.3	2.2	9/8/2002	effective basin	2	4.4	280.0
21	BTc	65.0	9.3	2.2	9/8/2002	effective basin	2	3.6	317.0
21	BTd	65.0	9.3	2.2	9/8/2002	effective basin	2	2.7	237.0
20	BTe	65.0	9.3	2.2	9/8/2002	effective basin	2	1.7	242.0
22	BIpcpA	420.0	56.0	14.0	9/17/2002	by back fence area, runoff b/tw BK/BS	1	6.0	166.7
20	BTj	90.0	12.9	3.0	9/20/2002	effective basin	2	-3.7	216.0
21	BCpcpH	50.0	7.1	1.7	9/23/2002	effective basin	2	-0.8	119.0
21	BCpcpI	50.0	7.1	1.7	9/23/2002	effective basin	2	-1.4	155.0
21	BCpcpJ	50.0	7.1	1.7	9/23/2002	effective basin	2	-2.0	136.0
20	BTk	50.0	7.1	1.7	9/23/2002	effective basin	1	7.3	144.0
21	BUpcpI	120.0	16.0	4.0	9/23/2002	effective basin	2	-1.6	170.0
20	BYpcpJ	150.0	20.0	5.0	9/23/2002	effective basin	2	-3.3	296.0
21	BZ	120.0	17.1	4.0	9/23/2002	effective basin	1	6.7	234.0
20	BTpcpK	80.0	11.4	2.7	9/29/2002	effective basin	2	-4.2	242.0
22	AQ	330	47	11	9/30/2002	N of WB lane, near 4 UG wells across rd	1	8.2	302.0
21	BCj	42.0	6.0	1.4	10/1/2002	effective basin	2	-0.2	107.0
20	BCd	40.0	5.7	1.3	10/3/2002	effective basin	2	0.2	169.0
20	BCe	40.0	5.7	1.3	10/3/2002	effective basin	2	-1.6	91.0
21	BCpcpD	40.0	5.7	1.3	10/3/2002	effective basin	2	2.6	407.0
21	BCpcpE	40.0	5.7	1.3	10/3/2002	effective basin	2	1.0	383.0
21	BCpcpF	40.0	5.7	1.3	10/3/2002	effective basin	2	0.4	276.0
21	BCpcpG	40.0	5.7	1.3	10/3/2002	effective basin	2	-0.2	392.0
21	BUpcpA	110.0	14.7	3.7	10/3/2002	effective basin	1	6.0	354.3
21	BUpcpB	110.0	14.7	3.7	10/3/2002	effective basin	2	4.5	333.0
21	BUpcpC	110.0	14.7	3.7	10/3/2002	effective basin	2	3.0	253.0
21	BUpcpD	110.0	14.7	3.7	10/3/2002	effective basin	2	1.5	229.0
21	BUpcpE	110.0	14.7	3.7	10/3/2002	effective basin	2	0.9	184.0
21	BUpcpF	110.0	14.7	3.7	10/3/2002	effective basin	2	0.2	172.0
21	BUpcpG	110.0	14.7	3.7	10/3/2002	effective basin	2	-0.4	162.0

Row	Well	Travel time days	wks	mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm
20	ATpcpB	5.0	0.7	0.2	1/1/2004	effective ba	1	5.3	2195.9
20	BMpcpC	5.0	0.7	0.2	1/1/2004	effective ba	1	5.4	7174.2
20	BTpcpK	80.0	11.4	2.7	1/1/2004	effective ba	2	-4.2	66.4
21	BUpcpA	110	15	4	1/1/2004	effective ba	1	6.0	470.4
21	BUpcpB	110	15	4	1/1/2004	effective ba	2	4.5	268.8
21	BUpcpC	110	15	4	1/1/2004	effective ba	2	3.0	295.5
21	BUpcpD	110	15	4	1/1/2004	effective ba	2	1.5	322.0
21	BUpcpE	110	15	4	1/1/2004	effective ba	2	0.9	285.0
21	BUpcpF	110	15	4	1/1/2004	effective ba	2	0.2	440.9
21	BUpcpG	110	15	4	1/1/2004	effective ba	2	-0.4	282.7
21	BUpcpH	110	15	4	1/1/2004	effective ba	2	-1.0	218.1
21	BUpcpI	120.0	16.0	4.0	1/1/2004	effective ba	2	-1.6	1018.0
20	BYpcpA	120.0	17.1	4.0	1/1/2004	effective ba	1	5.8	735.0
20	BYpcpB	120.0	16.0	4.0	1/1/2004	effective ba	2	4.3	2107.9
20	BYpcpC	120.0	16.0	4.0	1/1/2004	effective ba	2	2.8	409.2
20	BYpcpJ	150.0	20.0	5.0	1/1/2004	effective ba	2	-3.3	3830.1
21	BCpcpC	30.0	4.3	1.0	1/2/2004	effective ba	2	4.1	2417.6
20	BTpcpD	70.0	10.0	2.3	1/2/2004	effective ba	2	1.9	1998.1
20	BTpcpE	70.0	10.0	2.3	1/2/2004	effective ba	2	1.3	3985.5
20	BTpcpF	70.0	10.0	2.3	1/2/2004	effective ba	2	0.7	429.2
20	BTpcpG	70.0	10.0	2.3	1/2/2004	effective ba	2	0.1	293.5
20	BTpcpH	70.0	10.0	2.3	1/2/2004	effective ba	2	-0.5	198.2
20	BTpcpI	70.0	10.0	2.3	1/2/2004	effective ba	2	-1.1	267.7
20	ATpcpA	3.0	0.4	0.1	1/3/2004	effective ba	1	6.8	273.4
20	BCh	17.0	2.4	0.6	1/3/2004	effective ba	1	5.0	2036.0
20	BMe	17.0	2.4	0.6	1/3/2004	effective ba	2	1.5	164.0
20	BMpcpB	3.0	0.4	0.1	1/3/2004	effective ba	1	6.0	3460.5
9	AC	190.0	27.1	6.3	1/5/2004	b/tw areas (	1	8.2	348.0
15	AO	50.0	7.1	1.7	1/5/2004	near BO ch	1	8.2	366.0
20	BCf	15.0	2.1	0.5	1/5/2004	effective ba	1	6.8	2416.0
20	BMpcpA	1.0	0.1	0.0	1/5/2004	effective ba	1	6.9	1097.2
20	BMpcpJ	18.0	2.6	0.6	1/5/2004	effective ba	2	0.8	194.1
20	BTk	50.0	7.1	1.7	1/5/2004	effective ba	1	7.3	315.0
20	BTpcpJ	75.0	10.7	2.5	1/6/2004	effective ba	2	-2.6	115.0
20	BYpcpI	140.0	18.7	4.7	1/6/2004	effective ba	2	-1.8	4499.3
20	BYpcpJ	150.0	20.0	5.0	1/6/2004	effective ba	2	-3.3	3784.4
21	BCpcpA	25.0	3.6	0.8	1/7/2004	effective ba	1	7.1	720.3
21	BCpcpB	25.0	3.6	0.8	1/7/2004	effective ba	1	5.6	1532.9
21	BCpcpD	40.0	5.7	1.3	1/7/2004	effective ba	2	2.6	4489.7
21	BCpcpE	40.0	5.7	1.3	1/7/2004	effective ba	2	1.0	3475.9
21	BCpcpF	40.0	5.7	1.3	1/7/2004	effective ba	2	0.4	5630.6
21	BCpcpG	40.0	5.7	1.3	1/7/2004	effective ba	2	-0.2	2933.4
20	BMpcpK	25.0	3.6	0.8	1/7/2004	effective ba	2	-0.7	219.4
20	BTpcpC	60	9	2	1/7/2004	effective ba	2	3.5	2726.9
20	BYpcpD	130.0	17.3	4.3	1/7/2004	effective ba	2	1.3	1272.7
20	BYpcpE	130.0	17.3	4.3	1/7/2004	effective ba	2	0.7	989.9
20	BYpcpF	130.0	17.3	4.3	1/7/2004	effective ba	2	0.0	858.7
20	BYpcpG	130.0	17.3	4.3	1/7/2004	effective ba	2	-0.6	40.3
20	BYpcpH	130.0	17.3	4.3	1/7/2004	effective ba	2	-1.2	481.7
20	BMpcpI	15.0	2.1	0.5	1/8/2004	effective ba	2	1.7	396.7
12	AJ	11.0	1.6	0.4	1/9/2004	crest of bas	1	8.0	159.0
21	BCpcpC	30.0	4.3	1.0	1/9/2004	effective ba	2	4.1	4075.6
20	BMc	11.0	1.6	0.4	1/9/2004	effective ba	2	3.0	135.0
16	AS	80.0	11.4	2.7	1/10/2004	area 12 (so	1	7.4	1599.0
21	BCpcpH	50	7	2	1/10/2004	effective ba	2	-0.8	5417.7
21	BCpcpI	50	7	2	1/10/2004	effective ba	2	-1.4	8427.5
21	BCpcpJ	50	7	2	1/10/2004	effective ba	2	-2.0	10233.4
19	BMd	10.0	1.4	0.3	1/10/2004	effective ba	2	2.1	135.0
20	BMpcpH	13.0	1.9	0.4	1/10/2004	effective ba	2	2.3	633.0
19	BN	10.0	1.4	0.3	1/10/2004	effective ba	2	1.8	125.0
20	BTpcpA	50	7	2	1/10/2004	effective ba	1	6.5	122.3
20	BTpcpB	50	7	2	1/10/2004	effective ba	2	5.0	849.0
20	BTpcpK	80.0	11.4	2.7	1/10/2004	effective ba	2	-4.2	1232.9
21	BUpcpI	120	16	4	1/10/2004	effective ba	2	-1.6	2685.9
20	BYpcpA	120	17	4.	1/10/2004	effective ba	1	5.8	1359.9
20	BYpcpB	120	16	4	1/10/2004	effective ba	2	4.3	544.0
20	BYpcpC	120	16	4	1/10/2004	effective ba	2	2.8	240.8
20	BMb	9.0	1.3	0.3	1/11/2004	effective ba	2	3.9	168.0
20	BTpcpD	70.0	10.0	2.3	1/11/2004	effective ba	2	1.9	1229.6

Row	Well	Travel time days	wks	mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm
21	BUpcpH	110.0	14.7	3.7	10/3/2002	effective basin	2	-1.0	151.0
20	BYpcpI	140.0	18.7	4.7	10/3/2002	effective basin	2	-1.8	298.0
20	BTpcpJ	75.0	10.7	2.5	10/4/2002	effective basin	2	-2.6	250.0
21	BE	35.0	5.0	1.2	10/8/2002	effective basin	2	-0.5	114.0
20	BTpcpE	70.0	10.0	2.3	10/9/2002	effective basin	2	1.3	251.0
20	BTpcpF	70.0	10.0	2.3	10/9/2002	effective basin	2	0.7	193.0
20	BTpcpG	70.0	10.0	2.3	10/9/2002	effective basin	2	0.1	222.0
20	BTpcpH	70.0	10.0	2.3	10/9/2002	effective basin	2	-0.5	157.0
20	BTpcpI	70.0	10.0	2.3	10/9/2002	effective basin	2	-1.1	244.0
22	BIpcpA	420.0	56.0	14.0	10/10/2002	by back fence area, runoff b/tw BK/BS	1	6.0	4416.1
20	BTg	70.0	10.0	2.3	10/10/2002	effective basin	2	-0.1	155.0
20	BTh	70.0	10.0	2.3	10/10/2002	effective basin	2	-1.0	158.0
20	BTf	68.0	9.7	2.3	10/12/2002	effective basin	2	0.7	145.0
20	BCf	30.0	4.3	1.0	10/13/2002	effective basin	2	1.1	199.0
21	BCpcpC	30.0	4.3	1.0	10/13/2002	effective basin	2	4.1	375.0
20	BYpcpD	130.0	17.3	4.3	10/13/2002	effective basin	2	1.3	299.0
20	BYpcpE	130.0	17.3	4.3	10/13/2002	effective basin	2	0.7	18.0
20	BYpcpF	130.0	17.3	4.3	10/13/2002	effective basin	2	0.0	333.0
20	BYpcpG	130.0	17.3	4.3	10/13/2002	effective basin	2	-0.6	264.0
20	BYpcpH	130.0	17.3	4.3	10/13/2002	effective basin	2	-1.2	358.0
21	BTa	65.0	9.3	2.2	10/15/2002	effective basin	1	5.4	133.0
21	BTb	65.0	9.3	2.2	10/15/2002	effective basin	2	4.4	255.0
21	BTc	65.0	9.3	2.2	10/15/2002	effective basin	2	3.6	243.0
21	BTd	65.0	9.3	2.2	10/15/2002	effective basin	2	2.7	227.0
20	BTe	65.0	9.3	2.2	10/15/2002	effective basin	2	1.7	164.0
20	BCg	25.0	3.6	0.8	10/18/2002	effective basin	2	2.9	231.0
21	BCpcpA	25.0	3.6	0.8	10/18/2002	effective basin	1	7.1	67.5
21	BCpcpB	25.0	3.6	0.8	10/18/2002	effective basin	1	5.6	194.0
20	BMpcpK	25.0	3.6	0.8	10/18/2002	effective basin	2	-0.7	144.0
20	BYpcpJ	150.0	20.0	5.0	10/19/2002	effective basin	2	-3.3	646.0
22	AQ	330.0	47.1	11.0	10/23/2002	N of WB lane, near 4 UG wells across rd	1	8.2	400.0
19	BCa	20.0	2.9	0.7	10/23/2002	effective basin	1	6.0	96.0
19	BCb	20.0	2.9	0.7	10/23/2002	effective basin	2	3.6	117.0
20	BCc	20.0	2.9	0.7	10/23/2002	effective basin	2	2.0	155.0
21	BD	20.0	2.9	0.7	10/23/2002	effective basin	1	5.6	173.0
20	BTj	90.0	12.9	3.0	10/23/2002	effective basin	2	-3.7	172.0
21	BUpcpI	120.0	16.0	4.0	10/23/2002	effective basin	2	-1.6	357.0
20	BYpcpA	120.0	17.1	4.0	10/23/2002	effective basin	1	5.8	371.8
20	BYpcpB	120.0	16.0	4.0	10/23/2002	effective basin	2	4.3	312.0
20	BYpcpC	120.0	16.0	4.0	10/23/2002	effective basin	2	2.8	270.0
21	BZ	120.0	17.1	4.0	10/23/2002	effective basin	1	6.7	232.0
22	BIpcpA	420.0	56.0	14.0	10/24/2002	by back fence area, runoff b/tw BK/BS	1	6.0	3541.7
20	BMpcpJ	18.0	2.6	0.6	10/25/2002	effective basin	2	0.8	130.0
20	BCh	17.0	2.4	0.6	10/26/2002	effective basin	1	5.0	126.0
20	BMe	17.0	2.4	0.6	10/26/2002	effective basin	2	1.5	83.0
20	BCf	15.0	2.1	0.5	10/28/2002	effective basin	1	6.8	127.0
20	BMpcpI	15.0	2.1	0.5	10/28/2002	effective basin	2	1.7	517.0
21	BCpcpH	50.0	7.1	1.7	10/29/2002	effective basin	2	-0.8	889.0
21	BCpcpI	50.0	7.1	1.7	10/29/2002	effective basin	2	-1.4	87.0
21	BCpcpJ	50.0	7.1	1.7	10/29/2002	effective basin	2	-2.0	114.0
20	BYpcpI	140.0	18.7	4.7	10/29/2002	effective basin	2	-1.8	887.0
24	AR	300	43	10	10/30/2002	N of WB lane, N of median 8	1	8.1	408.0
20	BMpcpH	13.0	1.9	0.4	10/30/2002	effective basin	2	2.3	511.0
20	BTk	50.0	7.1	1.7	10/30/2002	effective basin	1	7.3	172.0
20	BMc	11.0	1.6	0.4	11/1/2002	effective basin	2	3.0	100.0
20	BMpcpG	11.0	1.6	0.4	11/1/2002	effective basin	2	2.9	560.0
19	BMd	10.0	1.4	0.3	11/2/2002	effective basin	2	2.1	92.0
19	BN	10.0	1.4	0.3	11/2/2002	effective basin	2	1.8	117.0
20	BTpcpK	80.0	11.4	2.7	11/2/2002	effective basin	2	-4.2	243.0
21	BUpcpA	110.0	14.7	3.7	11/2/2002	effective basin	1	6.0	270.4
21	BUpcpB	110.0	14.7	3.7	11/2/2002	effective basin	2	4.5	249.0
21	BUpcpC	110.0	14.7	3.7	11/2/2002	effective basin	2	3.0	300.0
21	BUpcpD	110.0	14.7	3.7	11/2/2002	effective basin	2	1.5	179.0
21	BUpcpE	110.0	14.7	3.7	11/2/2002	effective basin	2	0.9	238.0
21	BUpcpF	110.0	14.7	3.7	11/2/2002	effective basin	2	0.2	182.0
21	BUpcpG	110.0	14.7	3.7	11/2/2002	effective basin	2	-0.4	300.0
21	BUpcpH	110.0	14.7	3.7	11/2/2002	effective basin	2	-1.0	299.0
20	BMb	9.0	1.3	0.3	11/3/2002	effective basin	2	3.9	151.0
20	BMpcpF	9.0	1.3	0.3	11/3/2002	effective basin	2	3.6	276.0

Row	Well	Travel time days	wks	mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm
20	BTpcpE	70.0	10.0	2.3	1/11/2004	effective ba	2	1.3	398.6
20	BTpcpF	70.0	10.0	2.3	1/11/2004	effective ba	2	0.7	133.5
20	BTpcpG	70.0	10.0	2.3	1/11/2004	effective ba	2	0.1	242.0
20	BTpcpH	70.0	10.0	2.3	1/11/2004	effective ba	2	-0.5	142.2
20	BTpcpI	70.0	10.0	2.3	1/11/2004	effective ba	2	-1.1	211.2
21	BUpcpA	110.0	14.7	3.7	1/11/2004	effective ba	1	6.0	501.1
21	BUpcpB	110.0	14.7	3.7	1/11/2004	effective ba	2	4.5	299.2
21	BUpcpC	110.0	14.7	3.7	1/11/2004	effective ba	2	3.0	197.8
21	BUpcpD	110.0	14.7	3.7	1/11/2004	effective ba	2	1.5	225.1
21	BUpcpE	110.0	14.7	3.7	1/11/2004	effective ba	2	0.9	1926.6
21	BUpcpF	110.0	14.7	3.7	1/11/2004	effective ba	2	0.2	696.7
21	BUpcpG	110.0	14.7	3.7	1/11/2004	effective ba	2	-0.4	768.4
21	BUpcpH	110.0	14.7	3.7	1/11/2004	effective ba	2	-1.0	781.4
20	BYpcpI	140.0	18.7	4.7	1/11/2004	effective ba	2	-1.8	4499.3
20	BMpcpG	11.0	1.6	0.4	1/12/2004	effective ba	2	2.9	388.2
20	BTpcpC	60.0	8.6	2.0	1/12/2004	effective ba	2	3.5	2779.1
21	BCj	42.0	6.0	1.4	1/13/2004	effective ba	2	-0.2	900.0
19	BMa	7.0	1.0	0.2	1/13/2004	effective ba	1	4.8	169.0
7	AA	160.0	22.9	5.3	1/14/2004	rest area	1	8.4	165.0
21	BCpcpA	25.0	3.6	0.8	1/14/2004	effective ba	1	7.1	1238.5
21	BCpcpB	25.0	3.6	0.8	1/14/2004	effective ba	1	5.6	3688.7
20	BMpcpF	9.0	1.3	0.3	1/14/2004	effective ba	2	3.6	464.2
20	BMpcpJ	18.0	2.6	0.6	1/14/2004	effective ba	2	0.8	219.4
20	BMpcpK	25.0	3.6	0.8	1/14/2004	effective ba	2	-0.7	143.5
8	CA	160.0	22.9	5.3	1/14/2004	rest area, n	1	6.1	627.0
14	AN	210.0	30.0	7.0	1/15/2004	area 12 (so	1	8.0	479.0
20	BCd	40.0	5.7	1.3	1/15/2004	effective ba	2	0.2	5120.0
20	BCe	40.0	5.7	1.3	1/15/2004	effective ba	2	-1.6	5750.0
20	BMpcpE	8.0	1.1	0.3	1/15/2004	effective ba	2	4.2	1181.6
20	BTpcpJ	75.0	10.7	2.5	1/15/2004	effective ba	2	-2.6	304.2
20	BTpcpK	80.0	11.4	2.7	1/15/2004	effective ba	2	-4.2	3086.4
12	AG	130.0	18.6	4.3	1/16/2004	area 12 (so	1	7.3	393.0
24	AR	300.0	42.9	10.0	1/16/2004	N of WB la	1	8.1	NM
20	BYpcpD	130.0	17.3	4.3	1/16/2004	effective ba	2	1.3	2695.0
20	BYpcpE	130.0	17.3	4.3	1/16/2004	effective ba	2	0.7	2333.2
20	BYpcpF	130.0	17.3	4.3	1/16/2004	effective ba	2	0.0	3242.4
20	BYpcpG	130.0	17.3	4.3	1/16/2004	effective ba	2	-0.6	52.7
20	BYpcpH	130.0	17.3	4.3	1/16/2004	effective ba	2	-1.2	2820.3
20	BYpcpI	140.0	18.7	4.7	1/16/2004	effective ba	2	-1.8	4128.4
20	BYpcpJ	150.0	20.0	5.0	1/16/2004	effective ba	2	-3.3	3116.6
20	ATpcpC	6.0	0.9	0.2	1/17/2004	effective ba	2	4.7	218.3
21	BCpcpC	30.0	4.3	1.0	1/17/2004	effective ba	2	4.1	4127.7
21	BCpcpH	50	7	2	1/17/2004	effective ba	2	-0.8	3630.7
21	BCpcpI	50	7	2	1/17/2004	effective ba	2	-1.4	4841.0
21	BCpcpJ	50	7	2	1/17/2004	effective ba	2	-2.0	4550.3
20	BMpcpD	6.0	0.9	0.2	1/17/2004	effective ba	2	4.8	2278.9
20	BMpcpI	15.0	2.1	0.5	1/17/2004	effective ba	2	1.7	548.6
20	BTpcpA	50	7	2	1/17/2004	effective ba	1	6.5	123.1
20	BTpcpB	50	7	2	1/17/2004	effective ba	2	5.0	455.8
21	BUpcpI	120.0	16.0	4.0	1/17/2004	effective ba	2	-1.6	3045.7
20	BYpcpA	120.0	17.1	4.0	1/17/2004	effective ba	1	5.8	647.5
20	BYpcpB	120.0	16.0	4.0	1/17/2004	effective ba	2	4.3	547.2
20	BYpcpC	120.0	16.0	4.0	1/17/2004	effective ba	2	2.8	735.6
20	AT	2.0	0.3	0.1	1/18/2004	effective ba	1	7.3	10160.0
20	ATpcpB	5.0	0.7	0.2	1/18/2004	effective ba	1	5.3	24680.6
20	BMpcpC	5.0	0.7	0.2	1/18/2004	effective ba	1	5.4	7596.2
20	BMpcpH	13.0	1.9	0.4	1/19/2004	effective ba	2	2.3	675.2
8	AB	35.0	5.0	1.2	1/20/2004	west of rest	1	8.0	312.0
20	ATpcpA	3.0	0.4	0.1	1/20/2004	effective ba	1	6.8	14990.3
21	BCpcpD	40	6	1	1/20/2004	effective ba	2	2.6	7299.7
21	BCpcpE	40	6	1	1/20/2004	effective ba	2	1.0	4828.3
21	BCpcpF	40	6	1	1/20/2004	effective ba	2	0.4	8820.5
21	BCpcpG	40	6	1	1/20/2004	effective ba	2	-0.2	12674.3
21	BE	35.0	5.0	1.2	1/20/2004	effective ba	2	-0.5	7890.0
20	BMpcpB	3.0	0.4	0.1	1/20/2004	effective ba	1	6.0	5908.1
20	BTg	70.0	10.0	2.3	1/20/2004	effective ba	2	-0.1	532.0
20	BTh	70.0	10.0	2.3	1/20/2004	effective ba	2	-1.0	822.0
20	BTpcpD	70.0	10.0	2.3	1/20/2004	effective ba	2	1.9	1735.3
20	BTpcpE	70.0	10.0	2.3	1/20/2004	effective ba	2	1.3	430.4
20	BTpcpF	70.0	10.0	2.3	1/20/2004	effective ba	2	0.7	754.4

Row	Well	Travel time days	wks	mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm
20	BMpcpE	8.0	1.1	0.3	11/4/2002	effective basin	2	4.2	383.0
19	BMa	7.0	1.0	0.2	11/5/2002	effective basin	1	4.8	243.0
20	ATpcpC	6.0	0.9	0.2	11/6/2002	effective basin	2	4.7	185.0
20	BMpcpD	6.0	0.9	0.2	11/6/2002	effective basin	2	4.8	543.0
20	ATpcpB	5.0	0.7	0.2	11/7/2002	effective basin	1	5.3	1881.0
21	BCJ	42.0	6.0	1.4	11/7/2002	effective basin	2	-0.2	116.0
20	BMpcpC	5.0	0.7	0.2	11/7/2002	effective basin	1	5.4	804.0
20	BTpcpJ	75.0	10.7	2.5	11/7/2002	effective basin	2	-2.6	358.0
21	BCpcpD	40.0	5.7	1.3	11/8/2002	effective basin	2	2.6	147.0
21	BCpcpE	40.0	5.7	1.3	11/8/2002	effective basin	2	1.0	185.0
21	BCpcpF	40.0	5.7	1.3	11/8/2002	effective basin	2	0.4	956.0
21	BCpcpG	40.0	5.7	1.3	11/8/2002	effective basin	2	-0.2	143.0
20	BYpcpD	130.0	17.3	4.3	11/8/2002	effective basin	2	1.3	1910.0
20	BYpcpE	130.0	17.3	4.3	11/8/2002	effective basin	2	0.7	1926.0
20	BYpcpF	130.0	17.3	4.3	11/8/2002	effective basin	2	0.0	1409.0
20	BYpcpG	130.0	17.3	4.3	11/8/2002	effective basin	2	-0.6	64.0
20	BYpcpH	130.0	17.3	4.3	11/8/2002	effective basin	2	-1.2	1520.0
20	ATpcpA	3.0	0.4	0.1	11/9/2002	effective basin	1	6.8	394.0
20	BCd	40.0	5.7	1.3	11/9/2002	effective basin	2	0.2	223.0
20	BCe	40.0	5.7	1.3	11/9/2002	effective basin	2	-1.6	88.0
20	BMpcpB	3.0	0.4	0.1	11/9/2002	effective basin	1	6.0	86.0
20	AT	2.0	0.3	0.1	11/10/2002	effective basin	1	7.3	180.0
20	BMpcpA	1.0	0.1	0.0	11/11/2002	effective basin	1	6.9	73.1
22	BIpcpA	420.0	56.0	14.0	11/12/2002	by back fence area, runoff b/tw BK/BS	1	6.0	3545.2
20	BTg	70.0	10.0	2.3	11/12/2002	effective basin	2	-0.1	1300.0
20	BTh	70.0	10.0	2.3	11/12/2002	effective basin	2	-1.0	142.0
20	BTpcpE	70.0	10.0	2.3	11/12/2002	effective basin	2	1.3	1434.0
20	BTpcpF	70.0	10.0	2.3	11/12/2002	effective basin	2	0.7	1377.0
20	BTpcpG	70.0	10.0	2.3	11/12/2002	effective basin	2	0.1	1734.0
20	BTpcpH	70.0	10.0	2.3	11/12/2002	effective basin	2	-0.5	1854.0
20	BTpcpI	70.0	10.0	2.3	11/12/2002	effective basin	2	-1.1	585.0
21	BE	35.0	5.0	1.2	11/14/2002	effective basin	2	-0.5	107.0
20	BTf	68.0	9.7	2.3	11/14/2002	effective basin	2	0.7	1318.0
21	BTa	65.0	9.3	2.2	11/17/2002	effective basin	1	5.4	121.0
21	BTb	65.0	9.3	2.2	11/17/2002	effective basin	2	4.4	404.0
21	BTc	65.0	9.3	2.2	11/17/2002	effective basin	2	3.6	230.0
21	BTd	65.0	9.3	2.2	11/17/2002	effective basin	2	2.7	146.0
20	BTe	65.0	9.3	2.2	11/17/2002	effective basin	2	1.7	714.0
21	BCpcpC	30.0	4.3	1.0	11/18/2002	effective basin	2	4.1	169.0
21	BUpcpI	120.0	16.0	4.0	11/18/2002	effective basin	2	-1.6	160.0
20	BYpcpA	120.0	17.1	4.0	11/18/2002	effective basin	1	5.8	1110.8
20	BYpcpB	120.0	16.0	4.0	11/18/2002	effective basin	2	4.3	1704.0
20	BYpcpC	120.0	16.0	4.0	11/18/2002	effective basin	2	2.8	2318.0
18	AP	30.0	4.3	1.0	11/19/2002	effective basin	1	8.0	169.0
20	BCi	30.0	4.3	1.0	11/19/2002	effective basin	2	1.1	574.0
21	BZ	120.0	17.1	4.0	11/19/2002	effective basin	1	6.7	250.0
24	AR	300.0	42.9	10.0	11/22/2002	N of WB lane, N of median 8	1	8.1	
20	BTj	90.0	12.9	3.0	11/22/2002	effective basin	2	-3.7	172.0
21	BCpcpB	25.0	3.6	0.8	11/23/2002	effective basin	1	5.6	86.0
20	BMpcpK	25.0	3.6	0.8	11/23/2002	effective basin	2	-0.7	186.0
20	BCg	25.0	3.6	0.8	11/24/2002	effective basin	2	2.9	114.0
20	BYpcpJ	150.0	20.0	5.0	11/24/2002	effective basin	2	-3.3	1394.0
21	BUpcpA	110.0	14.7	3.7	11/28/2002	effective basin	1	6.0	1718.3
21	BUpcpB	110.0	14.7	3.7	11/28/2002	effective basin	2	4.5	1587.0
21	BUpcpC	110.0	14.7	3.7	11/28/2002	effective basin	2	3.0	447.0
21	BUpcpD	110.0	14.7	3.7	11/28/2002	effective basin	2	1.5	421.0
21	BUpcpE	110.0	14.7	3.7	11/28/2002	effective basin	2	0.9	417.0
21	BUpcpF	110.0	14.7	3.7	11/28/2002	effective basin	2	0.2	352.0
21	BUpcpG	110.0	14.7	3.7	11/28/2002	effective basin	2	-0.4	245.0
21	BUpcpH	110.0	14.7	3.7	11/28/2002	effective basin	2	-1.0	146.0
19	BCa	20.0	2.9	0.7	11/29/2002	effective basin	1	6.0	95.0
19	BCb	20.0	2.9	0.7	11/29/2002	effective basin	2	3.6	88.0
20	BCc	20.0	2.9	0.7	11/29/2002	effective basin	2	2.0	79.0
21	BD	20.0	2.9	0.7	11/29/2002	effective basin	1	5.6	111.0
22	BIpcpA	420.0	56.0	14.0	11/29/2002	by back fence area, runoff b/tw BK/BS	1	6.0	2531.7
20	BMpcpI	18.0	2.6	0.6	11/30/2002	effective basin	2	0.8	2556.0
20	BCh	17.0	2.4	0.6	12/2/2002	effective basin	1	5.0	118.0
21	BCpcpH	50.0	7.1	1.7	12/2/2002	effective basin	2	-0.8	1506.0
21	BCpcpI	50.0	7.1	1.7	12/2/2002	effective basin	2	-1.4	1814.0

Row	Well	Travel time days	wks	mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm
20	BTpcpG	70.0	10.0	2.3	1/20/2004	effective ba	2	0.1	302.6
20	BTpcpH	70.0	10.0	2.3	1/20/2004	effective ba	2	-0.5	187.6
20	BTpcpI	70.0	10.0	2.3	1/20/2004	effective ba	2	-1.1	1668.5
20	BTpcpJ	75.0	10.7	2.5	1/20/2004	effective ba	2	-2.6	654.2
21	BUpcpA	110	15	4	1/20/2004	effective ba	1	6.0	252.5
21	BUpcpB	110	15	4	1/20/2004	effective ba	2	4.5	510.0
21	BUpcpC	110	15	4	1/20/2004	effective ba	2	3.0	1857.8
21	BUpcpD	110	15	4	1/20/2004	effective ba	2	1.5	2829.5
21	BUpcpE	110	15	4	1/20/2004	effective ba	2	0.9	2838.0
21	BUpcpF	110	15	4	1/20/2004	effective ba	2	0.2	3874.4
21	BUpcpG	110	15	4	1/20/2004	effective ba	2	-0.4	2865.0
21	BUpcpH	110	15	4	1/20/2004	effective ba	2	-1.0	2805.3
13	AH	90.0	12.9	3.0	1/21/2004	area 12 (so	1	7.4	471.0
20	BMpcpG	11.0	1.6	0.4	1/21/2004	effective ba	2	2.9	2532.1
20	BMpcpJ	18.0	2.6	0.6	1/21/2004	effective ba	2	0.8	122.4
20	BTj	90.0	12.9	3.0	1/21/2004	effective ba	2	-3.7	3517.0
20	BTpcpC	60.0	8.6	2.0	1/21/2004	effective ba	2	3.5	1042.2
20	BTpcpK	80.0	11.4	2.7	1/21/2004	effective ba	2	-4.2	3044.9
20	BYpcpD	130.0	17.3	4.3	1/21/2004	effective ba	2	1.3	4540.1
20	BYpcpE	130.0	17.3	4.3	1/21/2004	effective ba	2	0.7	4190.9
20	BYpcpF	130.0	17.3	4.3	1/21/2004	effective ba	2	0.0	5299.3
20	BYpcpG	130.0	17.3	4.3	1/21/2004	effective ba	2	-0.6	138.6
20	BYpcpH	130.0	17.3	4.3	1/21/2004	effective ba	2	-1.2	5504.6
21	BCpcpA	25.0	3.6	0.8	1/22/2004	effective ba	1	7.1	1335.2
21	BCpcpB	25.0	3.6	0.8	1/22/2004	effective ba	1	5.6	4711.3
21	BCpcpH	50.0	7.1	1.7	1/22/2004	effective ba	2	-0.8	3964.5
21	BCpcpI	50.0	7.1	1.7	1/22/2004	effective ba	2	-1.4	4258.2
21	BCpcpJ	50.0	7.1	1.7	1/22/2004	effective ba	2	-2.0	2828.6
20	BMpcpA	1.0	0.1	0.0	1/22/2004	effective ba	1	6.9	11394.3
20	BMpcpK	25.0	3.6	0.8	1/22/2004	effective ba	2	-0.7	2025.6
20	BTf	68.0	9.7	2.3	1/22/2004	effective ba	2	0.7	1159.0
20	BTpcpA	50.0	7.1	1.7	1/22/2004	effective ba	1	6.5	137.9
20	BTpcpB	50.0	7.1	1.7	1/22/2004	effective ba	2	5.0	498.2
20	BMpcpF	9.0	1.3	0.3	1/23/2004	effective ba	2	3.6	506.4
9	AD	150.0	21.4	5.0	1/24/2004	b/tw areas (	1	8.1	505.0
20	BMpcpE	8.0	1.1	0.3	1/24/2004	effective ba	2	4.2	844.0
20	BMpcpI	15.0	2.1	0.5	1/24/2004	effective ba	2	1.7	202.6
20	BYpcpJ	150.0	20.0	5.0	1/24/2004	effective ba	2	-3.3	4404.1
10	AI	200.0	28.6	6.7	1/25/2004	b/tw areas (	1	8.1	251.0
18	AP	30.0	4.3	1.0	1/25/2004	effective ba	1	8.0	494.0
20	BCi	30.0	4.3	1.0	1/25/2004	effective ba	2	1.1	5020.0
22	BG	30.0	4.3	1.0	1/25/2004	effective ba	1	7.6	386.0
21	BTa	65.0	9.3	2.2	1/25/2004	effective ba	1	5.4	278.0
21	BTb	65.0	9.3	2.2	1/25/2004	effective ba	2	4.4	357.0
21	BTc	65.0	9.3	2.2	1/25/2004	effective ba	2	3.6	1424.0
21	BTd	65.0	9.3	2.2	1/25/2004	effective ba	2	2.7	2381.0
20	BTe	65.0	9.3	2.2	1/25/2004	effective ba	2	1.7	1478.0
20	BTpcpD	70.0	10.0	2.3	1/25/2004	effective ba	2	1.9	2228.9
20	BTpcpE	70.0	10.0	2.3	1/25/2004	effective ba	2	1.3	1931.7
20	BTpcpF	70.0	10.0	2.3	1/25/2004	effective ba	2	0.7	1690.7
20	BTpcpG	70.0	10.0	2.3	1/25/2004	effective ba	2	0.1	1081.6
20	BTpcpH	70.0	10.0	2.3	1/25/2004	effective ba	2	-0.5	618.1
20	BTpcpI	70.0	10.0	2.3	1/25/2004	effective ba	2	-1.1	1859.2
14	AF	120.0	17.1	4.0	1/26/2004	area 12 (so	1	7.3	832.0
20	ATpcpC	6.0	0.9	0.2	1/26/2004	effective ba	2	4.7	589.7
20	BMpcpD	6.0	0.9	0.2	1/26/2004	effective ba	2	4.8	2532.1
20	BMpcpH	13.0	1.9	0.4	1/26/2004	effective ba	2	2.3	211.0
20	BTpcpJ	75.0	10.7	2.5	1/26/2004	effective ba	2	-2.6	5253.7
21	BUpcpI	120.0	16.0	4.0	1/26/2004	effective ba	2	-1.6	2111.2
20	BYpcpA	120.0	17.1	4.0	1/26/2004	effective ba	1	5.8	928.4
20	BYpcpB	120.0	16.0	4.0	1/26/2004	effective ba	2	4.3	1602.6
20	BYpcpC	120.0	16.0	4.0	1/26/2004	effective ba	2	2.8	2108.2
20	BYpcpD	130.0	17.3	4.3	1/26/2004	effective ba	2	1.3	4949.3
20	BYpcpE	130.0	17.3	4.3	1/26/2004	effective ba	2	0.7	3568.0
20	BYpcpF	130.0	17.3	4.3	1/26/2004	effective ba	2	0.0	2790.1
20	BYpcpG	130.0	17.3	4.3	1/26/2004	effective ba	2	-0.6	148.3
20	BYpcpH	130.0	17.3	4.3	1/26/2004	effective ba	2	-1.2	5488.2
20	BYpcpI	140.0	18.7	4.7	1/26/2004	effective ba	2	-1.8	2673.3
21	BZ	120.0	17.1	4.0	1/26/2004	effective ba	1	6.7	617.0
11	AK	240.0	34.3	8.0	1/27/2004	@ E BC, e	1	7.4	285.0

Row	Well	Travel time days	wks	mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm
21	BCpcpJ	50.0	7.1	1.7	12/2/2002	effective basin	2	-2.0	2748.0
20	BMe	17.0	2.4	0.6	12/2/2002	effective basin	2	1.5	107.0
20	BTk	50.0	7.1	1.7	12/2/2002	effective basin	1	7.3	130.0
20	BTpcpK	80.0	11.4	2.7	12/2/2002	effective basin	2	-4.2	210.0
20	BMpcpI	15.0	2.1	0.5	12/3/2002	effective basin	2	1.7	2587.0
22	AQ	330.0	47.1	11.0	12/4/2002	N of WB lane, near 4 UG wells across rd	1	8.2	562.0
20	BCf	15.0	2.1	0.5	12/4/2002	effective basin	1	6.8	113.0
20	BYpcpI	140.0	18.7	4.7	12/4/2002	effective basin	2	-1.8	2116.0
20	BMpcpH	13.0	1.9	0.4	12/5/2002	effective basin	2	2.3	2528.0
20	BMpcpG	11.0	1.6	0.4	12/7/2002	effective basin	2	2.9	1931.0
20	BTpcpJ	75.0	10.7	2.5	12/7/2002	effective basin	2	-2.6	1126.0
22	BIpcpA	420.0	56.0	14.0	12/8/2002	by back fence area, runoff b/tw BK/BS	1	6.0	2638.3
20	BMc	11.0	1.6	0.4	12/8/2002	effective basin	2	3.0	3008.0
19	BMd	10.0	1.4	0.3	12/9/2002	effective basin	2	2.1	967.0
20	BMpcpF	9.0	1.3	0.3	12/9/2002	effective basin	2	3.6	1912.0
19	BN	10.0	1.4	0.3	12/9/2002	effective basin	2	1.8	2542.0
21	BCj	42.0	6.0	1.4	12/10/2002	effective basin	2	-0.2	1341.0
20	BMb	9.0	1.3	0.3	12/10/2002	effective basin	2	3.9	2490.0
20	BMpcpE	8.0	1.1	0.3	12/10/2002	effective basin	2	4.2	1251.0
20	ATpcpC	6.0	0.9	0.2	12/12/2002	effective basin	2	4.7	272.0
20	BCd	40.0	5.7	1.3	12/12/2002	effective basin	2	0.2	687.0
20	BCe	40.0	5.7	1.3	12/12/2002	effective basin	2	-1.6	1196.0
21	BCpcpD	40.0	5.7	1.3	12/12/2002	effective basin	2	2.6	2409.0
21	BCpcpE	40.0	5.7	1.3	12/12/2002	effective basin	2	1.0	1893.0
21	BCpcpF	40.0	5.7	1.3	12/12/2002	effective basin	2	0.4	1749.0
21	BCpcpG	40.0	5.7	1.3	12/12/2002	effective basin	2	-0.2	1994.0
19	BMa	7.0	1.0	0.2	12/12/2002	effective basin	1	4.8	1430.0
20	BMpcpD	6.0	0.9	0.2	12/12/2002	effective basin	2	4.8	1632.0
20	BTg	70.0	10.0	2.3	12/12/2002	effective basin	2	-0.1	1828.0
20	BTh	70.0	10.0	2.3	12/12/2002	effective basin	2	-1.0	1833.0
20	BTpcpD	70.0	10.0	2.3	12/12/2002	effective basin	2	1.9	2628.0
20	BTpcpE	70.0	10.0	2.3	12/12/2002	effective basin	2	1.3	2085.0
20	BTpcpF	70.0	10.0	2.3	12/12/2002	effective basin	2	0.7	2299.0
20	BTpcpG	70.0	10.0	2.3	12/12/2002	effective basin	2	0.1	1861.0
20	BTpcpH	70.0	10.0	2.3	12/12/2002	effective basin	2	-0.5	1971.0
20	BTpcpI	70.0	10.0	2.3	12/12/2002	effective basin	2	-1.1	2055.0
20	ATpcpB	5.0	0.7	0.2	12/13/2002	effective basin	1	5.3	2362.0
20	BMpcpC	5.0	0.7	0.2	12/13/2002	effective basin	1	5.4	1406.0
20	BTf	68.0	9.7	2.3	12/14/2002	effective basin	2	0.7	2048.0
20	BYpcpD	130.0	17.3	4.3	12/14/2002	effective basin	2	1.3	2246.0
20	BYpcpE	130.0	17.3	4.3	12/14/2002	effective basin	2	0.7	2489.0
20	BYpcpF	130.0	17.3	4.3	12/14/2002	effective basin	2	0.0	3182.0
20	BYpcpG	130.0	17.3	4.3	12/14/2002	effective basin	2	-0.6	159.0
20	BYpcpH	130.0	17.3	4.3	12/14/2002	effective basin	2	-1.2	1628.0
20	ATpcpA	3.0	0.4	0.1	12/15/2002	effective basin	1	6.8	232.4
22	BIpcpA	420.0	56.0	14.0	12/15/2002	by back fence area, runoff b/tw BK/BS	1	6.0	2270.6
20	BMpcpB	3.0	0.4	0.1	12/15/2002	effective basin	1	6.0	1223.0
22	AQ	330.0	47.1	11.0	12/16/2002	N of WB lane, near 4 UG wells across rd	1	8.2	590.0
20	AT	2.0	0.3	0.1	12/17/2002	effective basin	1	7.3	2206.0
21	BE	35.0	5.0	1.2	12/17/2002	effective basin	2	-0.5	1643.0
21	BTa	65.0	9.3	2.2	12/17/2002	effective basin	1	5.4	151.0
21	BTb	65.0	9.3	2.2	12/17/2002	effective basin	2	4.4	846.0
21	BTc	65.0	9.3	2.2	12/17/2002	effective basin	2	3.6	882.0
21	BTd	65.0	9.3	2.2	12/17/2002	effective basin	2	2.7	1855.0
20	BTe	65.0	9.3	2.2	12/17/2002	effective basin	2	1.7	1756.0
20	BTj	90.0	12.9	3.0	12/19/2002	effective basin	2	-3.7	168.0
20	BTpcpK	80.0	11.4	2.7	12/20/2002	effective basin	2	-4.2	186.0
18	AP	30.0	4.3	1.0	12/22/2002	effective basin	1	8.0	113.0
20	BCi	30.0	4.3	1.0	12/22/2002	effective basin	2	1.1	1097.0
21	BCpcpC	30.0	4.3	1.0	12/22/2002	effective basin	2	4.1	2059.0
20	BTpcpC	60.0	8.6	2.0	12/22/2002	effective basin	2	3.5	2101.0
20	BYpcpJ	150.0	20.0	5.0	12/22/2002	effective basin	2	-3.3	1326.0
22	BIpcpA	420.0	56.0	14.0	12/23/2002	by back fence area, runoff b/tw BK/BS	1	6.0	3072.5
21	BUpcpI	120.0	16.0	4.0	12/24/2002	effective basin	2	-1.6	442.0
20	BYpcpA	120.0	17.1	4.0	12/24/2002	effective basin	1	5.8	3450.7
20	BYpcpB	120.0	16.0	4.0	12/24/2002	effective basin	2	4.3	4817.0
20	BYpcpC	120.0	16.0	4.0	12/24/2002	effective basin	2	2.8	3051.0
21	BZ	120.0	17.1	4.0	12/24/2002	effective basin	1	6.7	1296.0
20	BTpcpJ	75.0	10.7	2.5	12/25/2002	effective basin	2	-2.6	430.0
20	BCg	25.0	3.6	0.8	12/27/2002	effective basin	2	2.9	1815.0

Row	Well	Travel time days	wks	mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm
20	ATpcpB	5.0	0.7	0.2	1/27/2004	effective ba	1	5.3	4292.1
21	BCpcpD	40	6	1	1/27/2004	effective ba	2	2.6	6035.4
21	BCpcpE	40	6	1	1/27/2004	effective ba	2	1.0	6353.8
21	BCpcpF	40	6	1	1/27/2004	effective ba	2	0.4	6977.2
21	BCpcpG	40	6	1	1/27/2004	effective ba	2	-0.2	3933.3
20	BMpcpC	5.0	0.7	0.2	1/27/2004	effective ba	1	5.4	3376.1
21	BUpcpA	110.0	14.7	3.7	1/27/2004	effective ba	1	6.0	388.5
21	BUpcpB	110.0	14.7	3.7	1/27/2004	effective ba	2	4.5	820.8
21	BUpcpC	110.0	14.7	3.7	1/27/2004	effective ba	2	3.0	490.4
21	BUpcpD	110.0	14.7	3.7	1/27/2004	effective ba	2	1.5	1661.5
21	BUpcpE	110.0	14.7	3.7	1/27/2004	effective ba	2	0.9	2015.1
21	BUpcpF	110.0	14.7	3.7	1/27/2004	effective ba	2	0.2	2278.8
21	BUpcpG	110.0	14.7	3.7	1/27/2004	effective ba	2	-0.4	2486.6
21	BUpcpH	110.0	14.7	3.7	1/27/2004	effective ba	2	-1.0	3096.3
19	CB	240.0	34.3	8.0	1/27/2004	N of WB la	1	8.6	299.0
20	BMpcpG	11.0	1.6	0.4	1/28/2004	effective ba	2	2.9	1266.0
20	ATpcpA	3.0	0.4	0.1	1/29/2004	effective ba	1	6.8	6860.3
20	BMpcpB	3.0	0.4	0.1	1/29/2004	effective ba	1	6.0	1223.8
20	BMpcpJ	18.0	2.6	0.6	1/29/2004	effective ba	2	0.8	3291.7
20	BCg	25.0	3.6	0.8	1/30/2004	effective ba	2	2.9	3300.0
21	BCpcpC	30	4	1	1/30/2004	effective ba	2	4.1	4315.0
20	BMpcpF	9.0	1.3	0.3	1/30/2004	effective ba	2	3.6	2278.9
20	BTpcpC	60.0	8.6	2.0	1/30/2004	effective ba	2	3.5	1746.5
16	AS	80.0	11.4	2.7	1/31/2004	area 12 (so	1	7.4	562.0
21	BCpcpH	50.0	7.1	1.7	1/31/2004	effective ba	2	-0.8	3630.7
21	BCpcpI	50.0	7.1	1.7	1/31/2004	effective ba	2	-1.4	1901.1
21	BCpcpJ	50.0	7.1	1.7	1/31/2004	effective ba	2	-2.0	1240.5
20	BMpcpA	1.0	0.1	0.0	1/31/2004	effective ba	1	6.9	9706.2
20	BMpcpE	8.0	1.1	0.3	1/31/2004	effective ba	2	4.2	1730.2
20	BTpcpA	50.0	7.1	1.7	1/31/2004	effective ba	1	6.5	164.1
20	BTpcpB	50.0	7.1	1.7	1/31/2004	effective ba	2	5.0	330.3
20	BTpcpD	70.0	10.0	2.3	1/31/2004	effective ba	2	1.9	1963.3
20	BTpcpE	70.0	10.0	2.3	1/31/2004	effective ba	2	1.3	2881.7
20	BTpcpF	70.0	10.0	2.3	1/31/2004	effective ba	2	0.7	3669.2
20	BTpcpG	70.0	10.0	2.3	1/31/2004	effective ba	2	0.1	705.1
20	BTpcpH	70.0	10.0	2.3	1/31/2004	effective ba	2	-0.5	1721.4
20	BTpcpI	70.0	10.0	2.3	1/31/2004	effective ba	2	-1.1	2958.9
20	BTpcpK	80	11	3	1/31/2004	effective ba	2	-4.2	3057.7
21	BUpcpI	120.0	16.0	4.0	1/31/2004	effective ba	2	-1.6	1592.1
20	BYpcpA	120.0	17.1	4.0	1/31/2004	effective ba	1	5.8	1624.4
20	BYpcpB	120.0	16.0	4.0	1/31/2004	effective ba	2	4.3	2814.4
20	BYpcpC	120.0	16.0	4.0	1/31/2004	effective ba	2	2.8	3130.7
21	BCpcpD	40.0	5.7	1.3	2/1/2004	effective ba	2	2.6	5840.5
21	BCpcpE	40.0	5.7	1.3	2/1/2004	effective ba	2	1.0	3372.4
21	BCpcpF	40.0	5.7	1.3	2/1/2004	effective ba	2	0.4	2023.4
21	BCpcpG	40.0	5.7	1.3	2/1/2004	effective ba	2	-0.2	4586.5
20	BMpcpI	15.0	2.1	0.5	2/1/2004	effective ba	2	1.7	5064.1
20	ATpcpC	6.0	0.9	0.2	2/2/2004	effective ba	2	4.7	232.9
20	BMpcpD	6.0	0.9	0.2	2/2/2004	effective ba	2	4.8	2532.1
20	ATpcpB	5.0	0.7	0.2	2/3/2004	effective ba	1	5.3	1844.4
20	BMpcpC	5.0	0.7	0.2	2/3/2004	effective ba	1	5.4	7722.8
20	BMpcpH	13.0	1.9	0.4	2/3/2004	effective ba	2	2.3	4642.1
20	BYpcpI	140.0	18.7	4.7	2/3/2004	effective ba	2	-1.8	3646.9
7	AA	160.0	22.9	5.3	2/4/2004	rest area	1	8.4	NM
9	AC	190.0	27.1	6.3	2/4/2004	b/tw areas (	1	8.2	214.0
19	BCa	20.0	2.9	0.7	2/4/2004	effective ba	1	6.0	2786.0
19	BCb	20.0	2.9	0.7	2/4/2004	effective ba	2	3.6	2251.0
20	BCc	20.0	2.9	0.7	2/4/2004	effective ba	2	2.0	1823.0
21	BCpcpA	25	4	1	2/4/2004	effective ba	1	7.1	1973.0
21	BCpcpB	25	4	1	2/4/2004	effective ba	1	5.6	3069.3
21	BD	20.0	2.9	0.7	2/4/2004	effective ba	1	5.6	2639.0
20	BMpcpK	25	4	1	2/4/2004	effective ba	2	-0.7	7174.2
20	BTpcpC	60.0	8.6	2.0	2/4/2004	effective ba	2	3.5	1424.6
20	CA	160.0	22.9	5.3	2/4/2004	rest area, nc	1	6.1	285.0
20	ATpcpA	3.0	0.4	0.1	2/5/2004	effective ba	1	6.8	2098.6
20	BMpcpB	3.0	0.4	0.1	2/5/2004	effective ba	1	6.0	3840.3
20	BMpcpG	11.0	1.6	0.4	2/5/2004	effective ba	2	2.9	2954.1
20	BTpcpJ	75	11	3	2/5/2004	effective ba	2	-2.6	6164.3
21	BUpcpA	110.0	14.7	3.7	2/5/2004	effective ba	1	6.0	759.6

Row	Well	Travel time days	wks	mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm
21	BCpcpA	25.0	3.6	0.8	12/27/2002	effective basin	1	7.1	453.9
21	BCpcpB	25.0	3.6	0.8	12/27/2002	effective basin	1	5.6	200.0
20	BMpcpK	25.0	3.6	0.8	12/27/2002	effective basin	2	-0.7	212.0
20	BTpcpK	80.0	11.4	2.7	12/28/2002	effective basin	2	-4.2	227.0
11	AK	240	34	8	12/29/2002	@ E BC, east of median 13 area	1	7.4	132.0
21	CB	240	34	8	12/29/2002	N of WB lane, near 4 UG wells across rd	I	8.6	492.0
20	BTpcpD	70.0	10.0	2.3	12/30/2002	effective basin	2	1.9	630.0
20	BTpcpE	70.0	10.0	2.3	12/30/2002	effective basin	2	1.3	290.0
20	BTpcpF	70.0	10.0	2.3	12/30/2002	effective basin	2	0.7	547.0
20	BTpcpH	70.0	10.0	2.3	12/30/2002	effective basin	2	-0.5	1656.0
20	BTpcpI	70.0	10.0	2.3	12/30/2002	effective basin	2	-1.1	430.0
19	BCa	20.0	2.9	0.7	1/1/2003	effective basin	1	6.0	758.0
19	BCb	20.0	2.9	0.7	1/1/2003	effective basin	2	3.6	670.0
20	BCc	20.0	2.9	0.7	1/1/2003	effective basin	2	2.0	1192.0
21	BCpcpH	50.0	7.1	1.7	1/1/2003	effective basin	2	-0.8	185.0
21	BCpcpI	50.0	7.1	1.7	1/1/2003	effective basin	2	-1.4	280.0
21	BCpcpJ	50.0	7.1	1.7	1/1/2003	effective basin	2	-2.0	237.0
21	BD	20.0	2.9	0.7	1/1/2003	effective basin	1	5.6	1510.0
20	BTk	50.0	7.1	1.7	1/1/2003	effective basin	1	7.3	162.0
20	BTpcpA	50.0	7.1	1.7	1/1/2003	effective basin	I	6.5	135.2
20	BTpcpB	50.0	7.1	1.7	1/1/2003	effective basin	2	5.0	374.0
20	BYpcpI	140.0	18.7	4.7	1/1/2003	effective basin	2	-1.8	543.0
20	BTpcpJ	75.0	10.7	2.5	1/2/2003	effective basin	2	-2.6	265.0
24	AR	300.0	42.9	10.0	1/3/2003	N of WB lane, N of median 8	1	8.1	
20	BMpcpJ	18.0	2.6	0.6	1/3/2003	effective basin	2	0.8	179.0
21	BUpcpA	110.0	14.7	3.7	1/3/2003	effective basin	1	6.0	1518.3
21	BUpcpB	110.0	14.7	3.7	1/3/2003	effective basin	2	4.5	310.0
21	BUpcpC	110.0	14.7	3.7	1/3/2003	effective basin	2	3.0	3322.0
21	BUpcpD	110.0	14.7	3.7	1/3/2003	effective basin	2	1.5	528.0
21	BUpcpE	110.0	14.7	3.7	1/3/2003	effective basin	2	0.9	720.0
21	BUpcpF	110.0	14.7	3.7	1/3/2003	effective basin	2	0.2	584.0
21	BUpcpG	110.0	14.7	3.7	1/3/2003	effective basin	2	-0.4	486.0
21	BUpcpH	110.0	14.7	3.7	1/3/2003	effective basin	2	-1.0	479.0
20	BCh	17.0	2.4	0.6	1/4/2003	effective basin	1	5.0	1406.0
20	BMe	17.0	2.4	0.6	1/4/2003	effective basin	2	1.5	129.0
20	BYpcpJ	150.0	20.0	5.0	1/4/2003	effective basin	2	-3.3	325.0
22	BIpcpA	420	56	14	1/5/2003	by back fence area, runoff b/tw BK/BS	1	6.0	2424.4
20	BCf	15.0	2.1	0.5	1/6/2003	effective basin	1	6.8	422.0
20	BMpcpI	15.0	2.1	0.5	1/6/2003	effective basin	2	1.7	644.0
20	BTpcpD	70.0	10.0	2.3	1/7/2003	effective basin	2	1.9	640.0
20	BTpcpE	70.0	10.0	2.3	1/7/2003	effective basin	2	1.3	237.0
20	BTpcpF	70.0	10.0	2.3	1/7/2003	effective basin	2	0.7	135.0
20	BTpcpG	70.0	10.0	2.3	1/7/2003	effective basin	2	0.1	19.0
20	BTpcpH	70.0	10.0	2.3	1/7/2003	effective basin	2	-0.5	1122.0
20	BTpcpI	70.0	10.0	2.3	1/7/2003	effective basin	2	-1.1	305.0
20	BMpcpH	13.0	1.9	0.4	1/8/2003	effective basin	2	2.3	348.0
20	BTg	70.0	10.0	2.3	1/8/2003	effective basin	2	-0.1	929.0
20	BTh	70.0	10.0	2.3	1/8/2003	effective basin	2	-1.0	453.0
21	BCj	42.0	6.0	1.4	1/9/2003	effective basin	2	-0.2	272.0
20	BTpcpC	60.0	8.6	2.0	1/9/2003	effective basin	2	3.5	1890.0
20	BMc	11.0	1.6	0.4	1/10/2003	effective basin	2	3.0	154.0
20	BMpcpG	11.0	1.6	0.4	1/10/2003	effective basin	2	2.9	462.0
20	BTf	68.0	9.7	2.3	1/10/2003	effective basin	2	0.7	395.0
20	BCd	40.0	5.7	1.3	1/11/2003	effective basin	2	0.2	203.0
20	BCe	40.0	5.7	1.3	1/11/2003	effective basin	2	-1.6	153.0
21	BCpcpD	40.0	5.7	1.3	1/11/2003	effective basin	2	2.6	48.0
21	BCpcpE	40.0	5.7	1.3	1/11/2003	effective basin	2	1.0	1787.0
21	BCpcpF	40.0	5.7	1.3	1/11/2003	effective basin	2	0.4	3026.0
21	BCpcpG	40.0	5.7	1.3	1/11/2003	effective basin	2	-0.2	480.0
19	BMd	10.0	1.4	0.3	1/11/2003	effective basin	2	2.1	107.0
19	BN	10.0	1.4	0.3	1/11/2003	effective basin	2	1.8	922.0
20	BYpcpD	130.0	17.3	4.3	1/11/2003	effective basin	2	1.3	1801.0
20	BYpcpE	130.0	17.3	4.3	1/11/2003	effective basin	2	0.7	561.0
20	BYpcpF	130.0	17.3	4.3	1/11/2003	effective basin	2	0.0	966.0
20	BYpcpG	130.0	17.3	4.3	1/11/2003	effective basin	2	-0.6	79.0
20	BYpcpH	130.0	17.3	4.3	1/11/2003	effective basin	2	-1.2	710.0
22	BIpcpA	420	56	14	1/12/2003	by back fence area, runoff b/tw BK/BS	1	6.0	3038.4
20	BMfb	9.0	1.3	0.3	1/12/2003	effective basin	2	3.9	170.0
20	BMpcpF	9.0	1.3	0.3	1/12/2003	effective basin	2	3.6	344.0

Row	Well	Travel time days	wks	mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm
21	BUpcpB	110.0	14.7	3.7	2/5/2004	effective ba	2	4.5	1841.3
21	BUpcpC	110.0	14.7	3.7	2/5/2004	effective ba	2	3.0	1475.7
21	BUpcpD	110.0	14.7	3.7	2/5/2004	effective ba	2	1.5	3404.2
21	BUpcpE	110.0	14.7	3.7	2/5/2004	effective ba	2	0.9	2050.4
21	BUpcpF	110.0	14.7	3.7	2/5/2004	effective ba	2	0.2	1973.7
21	BUpcpG	110.0	14.7	3.7	2/5/2004	effective ba	2	-0.4	2459.6
21	BUpcpH	110.0	14.7	3.7	2/5/2004	effective ba	2	-1.0	2228.4
21	BUpcpI	120.0	16.0	4.0	2/5/2004	effective ba	2	-1.6	1548.2
20	BYpcpA	120.0	17.1	4.0	2/5/2004	effective ba	1	5.8	2028.8
20	BYpcpB	120.0	16.0	4.0	2/5/2004	effective ba	2	4.3	3179.6
20	BYpcpC	120.0	16.0	4.0	2/5/2004	effective ba	2	2.8	3312.6
20	BYpcpD	130.0	17.3	4.3	2/5/2004	effective ba	2	1.3	3428.0
20	BYpcpE	130.0	17.3	4.3	2/5/2004	effective ba	2	0.7	3245.7
20	BYpcpF	130.0	17.3	4.3	2/5/2004	effective ba	2	0.0	2263.9
20	BYpcpG	130.0	17.3	4.3	2/5/2004	effective ba	2	-0.6	102.2
20	BYpcpH	130.0	17.3	4.3	2/5/2004	effective ba	2	-1.2	2890.0
21	BCpcpC	30	4	1	2/6/2004	effective ba	2	4.1	3718.4
20	BCh	17.0	2.4	0.6	2/7/2004	effective ba	1	5.0	2946.0
20	BMe	17.0	2.4	0.6	2/7/2004	effective ba	2	1.5	NS
20	BMpcpA	1.0	0.1	0.0	2/7/2004	effective ba	1	6.9	2405.5
20	BMpcpF	9.0	1.3	0.3	2/7/2004	effective ba	2	3.6	2700.9
20	BMpcpE	8.0	1.1	0.3	2/8/2004	effective ba	2	4.2	5064.1
20	BYpcpJ	150	20	5	2/8/2004	effective ba	2	-3.3	2654.2
15	AO	50.0	7.1	1.7	2/9/2004	near BO ch	1	8.2	308.0
20	BCf	15.0	2.1	0.5	2/9/2004	effective ba	1	6.8	2020.0
21	BCpcpH	50.0	7.1	1.7	2/9/2004	effective ba	2	-0.8	3025.6
21	BCpcpI	50.0	7.1	1.7	2/9/2004	effective ba	2	-1.4	1577.4
21	BCpcpJ	50.0	7.1	1.7	2/9/2004	effective ba	2	-2.0	3041.5
20	BTk	50.0	7.1	1.7	2/9/2004	effective ba	1	7.3	214.0
20	BTpcpA	50.0	7.1	1.7	2/9/2004	effective ba	1	6.5	165.6
20	BTpcpB	50.0	7.1	1.7	2/9/2004	effective ba	2	5.0	1192.3
20	ATpcpC	6.0	0.9	0.2	2/10/2004	effective ba	2	4.7	973.0
21	BCpcpD	40.0	5.7	1.3	2/10/2004	effective ba	2	2.6	1752.1
21	BCpcpE	40.0	5.7	1.3	2/10/2004	effective ba	2	1.0	2605.9
21	BCpcpF	40.0	5.7	1.3	2/10/2004	effective ba	2	0.4	3336.9
21	BCpcpG	40.0	5.7	1.3	2/10/2004	effective ba	2	-0.2	3630.7
20	BMpcpD	6.0	0.9	0.2	2/10/2004	effective ba	2	4.8	2954.1
20	BTg	70.0	10.0	2.3	2/10/2004	effective ba	2	-0.1	2225.0
20	BTh	70.0	10.0	2.3	2/10/2004	effective ba	2	-1.0	3260.0
20	BTpcpC	60.0	8.6	2.0	2/10/2004	effective ba	2	3.5	965.9
20	BTpcpD	70	10	2	2/10/2004	effective ba	2	1.9	2962.1
20	BTpcpE	70	10	2	2/10/2004	effective ba	2	1.3	3800.0
20	BTpcpF	70	10	2	2/10/2004	effective ba	2	0.7	3779.3
20	BTpcpG	70	10	2	2/10/2004	effective ba	2	0.1	4397.2
20	BTpcpH	70	10	2	2/10/2004	effective ba	2	-0.5	4361.6
20	BTpcpI	70	10	2	2/10/2004	effective ba	2	-1.1	3107.0
20	BTpcpK	80.0	11.4	2.7	2/10/2004	effective ba	2	-4.2	4968.1
21	BUpcpA	110.0	14.7	3.7	2/10/2004	effective ba	1	6.0	531.1
21	BUpcpB	110.0	14.7	3.7	2/10/2004	effective ba	2	4.5	2010.3
21	BUpcpC	110.0	14.7	3.7	2/10/2004	effective ba	2	3.0	2098.6
21	BUpcpD	110.0	14.7	3.7	2/10/2004	effective ba	2	1.5	1885.9
21	BUpcpE	110.0	14.7	3.7	2/10/2004	effective ba	2	0.9	1187.4
21	BUpcpF	110.0	14.7	3.7	2/10/2004	effective ba	2	0.2	1589.8
21	BUpcpG	110.0	14.7	3.7	2/10/2004	effective ba	2	-0.4	1690.0
21	BUpcpH	110.0	14.7	3.7	2/10/2004	effective ba	2	-1.0	1720.2
20	ATpcpB	5.0	0.7	0.2	2/11/2004	effective ba	1	5.3	10050.7
21	BCpcpA	25	4	1	2/11/2004	effective ba	1	7.1	1539.0
21	BCpcpB	25	4	1	2/11/2004	effective ba	1	5.6	2442.0
21	BCpcpC	30.0	4.3	1.0	2/11/2004	effective ba	2	4.1	4105.4
20	BMpcpC	5.0	0.7	0.2	2/11/2004	effective ba	1	5.4	2532.1
20	BMpcpJ	18	3	1	2/11/2004	effective ba	2	0.8	4642.1
20	BMpcpK	25	4	1	2/11/2004	effective ba	2	-0.7	1899.0
20	BTf	68.0	9.7	2.3	2/12/2004	effective ba	2	0.7	1762.0
12	AG	130.0	18.6	4.3	2/13/2004	area 12 (so	1	7.3	341.0
12	AJ	11.0	1.6	0.4	2/13/2004	crest of bas	1	8.0	434.0
20	ATpcpA	3.0	0.4	0.1	2/13/2004	effective ba	1	6.8	13351.9
20	BMc	11.0	1.6	0.4	2/13/2004	effective ba	2	3.0	NS
20	BMpcpB	3.0	0.4	0.1	2/13/2004	effective ba	1	6.0	1772.4
20	BYpcpD	130.0	17.3	4.3	2/13/2004	effective ba	2	1.3	1829.2
20	BYpcpE	130.0	17.3	4.3	2/13/2004	effective ba	2	0.7	2195.0

Row	Well	Travel time days	wks	mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm
20	BMpcpE	8.0	1.1	0.3	1/13/2003	effective basin	2	4.2	516.0
21	BTa	65.0	9.3	2.2	1/13/2003	effective basin	1	5.4	463.0
21	BTb	65.0	9.3	2.2	1/13/2003	effective basin	2	4.4	1049.0
21	BTc	65.0	9.3	2.2	1/13/2003	effective basin	2	3.6	2003.0
21	BTd	65.0	9.3	2.2	1/13/2003	effective basin	2	2.7	1684.0
20	BTe	65.0	9.3	2.2	1/13/2003	effective basin	2	1.7	1672.0
19	BMa	7.0	1.0	0.2	1/14/2003	effective basin	1	4.8	160.0
20	BYpcpI	140.0	18.7	4.7	1/14/2003	effective basin	2	-1.8	258.0
24	AR	300.0	42.9	10.0	1/15/2003	N of WB lane, N of median 8	1	8.1	467.0
20	ATpcpC	6.0	0.9	0.2	1/15/2003	effective basin	2	4.7	294.0
20	BMpcpD	6.0	0.9	0.2	1/15/2003	effective basin	2	4.8	1835.0
20	ATpcpB	5.0	0.7	0.2	1/16/2003	effective basin	1	5.3	2532.0
21	BE	35.0	5.0	1.2	1/16/2003	effective basin	2	-0.5	692.0
20	BMpcpC	5.0	0.7	0.2	1/16/2003	effective basin	1	5.4	1235.0
22	BIpcpA	420.0	56.0	14.0	1/17/2003	by back fence area, runoff b/tw BK/BS	1	6.0	2291.4
20	BTpcpC	60.0	8.6	2.0	1/17/2003	effective basin	2	3.5	1954.0
20	ATpcpA	3.0	0.4	0.1	1/18/2003	effective basin	1	6.8	774.9
20	BMpcpB	3.0	0.4	0.1	1/18/2003	effective basin	1	6.0	1532.0
20	AT	2.0	0.3	0.1	1/19/2003	effective basin	1	7.3	389.0
21	BCpcpH	50.0	7.1	1.7	1/19/2003	effective basin	2	-0.8	2146.0
21	BCpcpI	50.0	7.1	1.7	1/19/2003	effective basin	2	-1.4	4304.0
21	BCpcpJ	50.0	7.1	1.7	1/19/2003	effective basin	2	-2.0	6148.0
20	BTpcpA	50.0	7.1	1.7	1/19/2003	effective basin	1	6.5	111.8
20	BTpcpB	50.0	7.1	1.7	1/19/2003	effective basin	2	5.0	1739.0
20	BMpcpA	1.0	0.1	0.0	1/20/2003	effective basin	1	6.9	487.1
11	AK	240.0	34.3	8.0	1/21/2003	@ E BC, east of median 13 area	1	7.4	211.0
18	AP	30.0	4.3	1.0	1/21/2003	effective basin	1	8.0	297.0
20	BCI	30.0	4.3	1.0	1/21/2003	effective basin	2	1.1	291.0
21	BCpcpC	30.0	4.3	1.0	1/21/2003	effective basin	2	4.1	3602.0
21	BUpcpI	120.0	16.0	4.0	1/21/2003	effective basin	2	-1.6	1421.0
20	BYpcpA	120.0	17.1	4.0	1/21/2003	effective basin	1	5.8	779.7
20	BYpcpB	120.0	16.0	4.0	1/21/2003	effective basin	2	4.3	858.0
20	BYpcpC	120.0	16.0	4.0	1/21/2003	effective basin	2	2.8	771.0
21	CB	240.0	34.3	8.0	1/21/2003	N of WB lane, near 4 UG wells across rd	1	8.6	468.0
22	AQ	330	47	11	1/22/2003	N of WB lane, near 4 UG wells across rd	1	8.2	202.0
20	BTj	90.0	12.9	3.0	1/23/2003	effective basin	2	-3.7	2231.0
21	BZ	120.0	17.1	4.0	1/23/2003	effective basin	1	6.7	987.0
20	BYpcpD	130.0	17.3	4.3	1/24/2003	effective basin	2	1.3	2454.0
20	BYpcpE	130.0	17.3	4.3	1/24/2003	effective basin	2	0.7	2263.0
20	BYpcpF	130.0	17.3	4.3	1/24/2003	effective basin	2	0.0	2925.0
20	BYpcpG	130.0	17.3	4.3	1/24/2003	effective basin	2	-0.6	617.0
20	BYpcpH	130.0	17.3	4.3	1/24/2003	effective basin	2	-1.2	433.0
20	BCg	25.0	3.6	0.8	1/26/2003	effective basin	2	2.9	1266.0
21	BCpcpA	25.0	3.6	0.8	1/26/2003	effective basin	1	7.1	1284.4
21	BCpcpB	25.0	3.6	0.8	1/26/2003	effective basin	1	5.6	3115.0
22	BIpcpA	420.0	56.0	14.0	1/26/2003	by back fence area, runoff b/tw BK/BS	1	6.0	2262.5
20	BMpcpK	25.0	3.6	0.8	1/26/2003	effective basin	2	-0.7	160.0
21	BCpcpH	50.0	7.1	1.7	1/27/2003	effective basin	2	-0.8	1900.0
21	BCpcpI	50.0	7.1	1.7	1/27/2003	effective basin	2	-1.4	3115.0
21	BCpcpJ	50.0	7.1	1.7	1/27/2003	effective basin	2	-2.0	2992.0
20	BTpcpB	50.0	7.1	1.7	1/27/2003	effective basin	2	5.0	1750.0
14	AN	210	30	7	1/28/2003	area 12 (south shoulder of EB lane)	1	8.0	250.0
20	BTk	50.0	7.1	1.7	1/28/2003	effective basin	1	7.3	1180.0
21	BCpcpD	40.0	5.7	1.3	1/29/2003	effective basin	2	2.6	283.0
21	BCpcpE	40.0	5.7	1.3	1/29/2003	effective basin	2	1.0	2583.0
21	BCpcpF	40.0	5.7	1.3	1/29/2003	effective basin	2	0.4	3650.0
21	BCpcpG	40.0	5.7	1.3	1/29/2003	effective basin	2	-0.2	2074.0
19	BCa	20.0	2.9	0.7	1/31/2003	effective basin	1	6.0	1230.0
19	BCb	20.0	2.9	0.7	1/31/2003	effective basin	2	3.6	3103.0
20	BCc	20.0	2.9	0.7	1/31/2003	effective basin	2	2.0	840.0
21	BD	20.0	2.9	0.7	1/31/2003	effective basin	1	5.6	13554.0
21	BUpcpA	110.0	14.7	3.7	1/31/2003	effective basin	1	6.0	1559.3
21	BUpcpB	110.0	14.7	3.7	1/31/2003	effective basin	2	4.5	823.0
21	BUpcpC	110.0	14.7	3.7	1/31/2003	effective basin	2	3.0	788.0
21	BUpcpD	110.0	14.7	3.7	1/31/2003	effective basin	2	1.5	686.0
21	BUpcpE	110.0	14.7	3.7	1/31/2003	effective basin	2	0.9	1802.0
21	BUpcpF	110.0	14.7	3.7	1/31/2003	effective basin	2	0.2	1799.0
21	BUpcpG	110.0	14.7	3.7	1/31/2003	effective basin	2	-0.4	1301.0
21	BUpcpH	110.0	14.7	3.7	1/31/2003	effective basin	2	-1.0	1324.0

Row	Well	Travel time days	wks	mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm
20	BYpcpF	130.0	17.3	4.3	2/13/2004	effective ba	2	0.0	2941.2
20	BYpcpG	130.0	17.3	4.3	2/13/2004	effective ba	2	-0.6	133.5
20	BYpcpH	130.0	17.3	4.3	2/13/2004	effective ba	2	-1.2	4249.6
9	AD	150.0	21.4	5.0	2/14/2004	b/tw areas (	1	8.1	415.0
21	BCpcpH	50.0	7.1	1.7	2/14/2004	effective ba	2	-0.8	3399.4
21	BCpcpI	50.0	7.1	1.7	2/14/2004	effective ba	2	-1.4	1797.2
21	BCpcpJ	50.0	7.1	1.7	2/14/2004	effective ba	2	-2.0	2243.1
19	BMd	10.0	1.4	0.3	2/14/2004	effective ba	2	2.1	2649.0
20	BMpcpI	15	2	1	2/14/2004	effective ba	2	1.7	7174.2
19	BN	10.0	1.4	0.3	2/14/2004	effective ba	2	1.8	NS
20	BTpcpA	50.0	7.1	1.7	2/14/2004	effective ba	1	6.5	45.7
20	BTpcpB	50.0	7.1	1.7	2/14/2004	effective ba	2	5.0	1411.3
20	BYpcpJ	150.0	20.0	5.0	2/14/2004	effective ba	2	-3.3	2774.4
20	BMb	9.0	1.3	0.3	2/15/2004	effective ba	2	3.9	NS
20	BMpcpA	1.0	0.1	0.0	2/15/2004	effective ba	1	6.9	1941.2
21	BTa	65.0	9.3	2.2	2/15/2004	effective ba	1	5.4	355.0
21	BTb	65.0	9.3	2.2	2/15/2004	effective ba	2	4.4	1492.0
21	BTc	65.0	9.3	2.2	2/15/2004	effective ba	2	3.6	934.0
21	BTd	65.0	9.3	2.2	2/15/2004	effective ba	2	2.7	1330.0
20	BTe	65.0	9.3	2.2	2/15/2004	effective ba	2	1.7	1930.0
20	BTpcpJ	75.0	10.7	2.5	2/15/2004	effective ba	2	-2.6	6257.0
21	BUpcpA	110.0	14.7	3.7	2/15/2004	effective ba	1	6.0	1106.6
21	BUpcpB	110.0	14.7	3.7	2/15/2004	effective ba	2	4.5	1589.8
21	BUpcpC	110.0	14.7	3.7	2/15/2004	effective ba	2	3.0	2001.4
21	BUpcpD	110.0	14.7	3.7	2/15/2004	effective ba	2	1.5	919.1
21	BUpcpE	110.0	14.7	3.7	2/15/2004	effective ba	2	0.9	963.3
21	BUpcpF	110.0	14.7	3.7	2/15/2004	effective ba	2	0.2	1195.8
21	BUpcpG	110.0	14.7	3.7	2/15/2004	effective ba	2	-0.4	943.6
21	BUpcpH	110.0	14.7	3.7	2/15/2004	effective ba	2	-1.0	926.1
21	BUpcpI	120.0	16.0	4.0	2/15/2004	effective ba	2	-1.6	361.3
20	BYpcpA	120.0	17.1	4.0	2/15/2004	effective ba	1	5.8	2299.2
20	BYpcpB	120.0	16.0	4.0	2/15/2004	effective ba	2	4.3	2838.6
20	BYpcpC	120.0	16.0	4.0	2/15/2004	effective ba	2	2.8	2783.0
21	BCpcpA	25.0	3.6	0.8	2/16/2004	effective ba	1	7.1	1626.2
21	BCpcpB	25.0	3.6	0.8	2/16/2004	effective ba	1	5.6	2923.0
20	BMpcpH	13	2	0	2/16/2004	effective ba	2	2.3	11394.3
20	BMpcpK	25.0	3.6	0.8	2/16/2004	effective ba	2	-0.7	282.7
21	BCj	42.0	6.0	1.4	2/17/2004	effective ba	2	-0.2	1887.0
19	BMa	7.0	1.0	0.2	2/17/2004	effective ba	1	4.8	NS
20	BMpcpG	11	2	0	2/18/2004	effective ba	2	2.9	4642.1
20	BMpcpJ	18	3	1	2/18/2004	effective ba	2	0.8	320.7
20	BYpcpI	140	19	5	2/18/2004	effective ba	2	-1.8	1816.1
20	BCd	40.0	5.7	1.3	2/19/2004	effective ba	2	0.2	3899.0
20	BCe	40.0	5.7	1.3	2/19/2004	effective ba	2	-1.6	4659.0
21	BCpcpD	40.0	5.7	1.3	2/19/2004	effective ba	2	2.6	1549.3
21	BCpcpE	40.0	5.7	1.3	2/19/2004	effective ba	2	1.0	3073.9
21	BCpcpF	40.0	5.7	1.3	2/19/2004	effective ba	2	0.4	2897.0
21	BCpcpG	40.0	5.7	1.3	2/19/2004	effective ba	2	-0.2	4538.4
20	BTpcpK	80	11	3	2/19/2004	effective ba	2	-4.2	2760.5
21	BCpcpC	30.0	4.3	1.0	2/20/2004	effective ba	2	4.1	1484.3
21	BCpcpH	50.0	7.1	1.7	2/20/2004	effective ba	2	-0.8	2582.1
21	BCpcpI	50.0	7.1	1.7	2/20/2004	effective ba	2	-1.4	3698.6
21	BCpcpJ	50.0	7.1	1.7	2/20/2004	effective ba	2	-2.0	4326.6
20	BMpcpF	9	1	0	2/20/2004	effective ba	2	3.6	3418.3
20	BTpcpA	50.0	7.1	1.7	2/20/2004	effective ba	1	6.5	197.8
20	BTpcpB	50.0	7.1	1.7	2/20/2004	effective ba	2	5.0	797.2
20	BTpcpC	60	9	2	2/20/2004	effective ba	2	3.5	1641.9
20	BTpcpD	70.0	10.0	2.3	2/20/2004	effective ba	2	1.9	3750.9
20	BTpcpE	70.0	10.0	2.3	2/20/2004	effective ba	2	1.3	2974.3
20	BTpcpF	70.0	10.0	2.3	2/20/2004	effective ba	2	0.7	3483.4
20	BTpcpG	70.0	10.0	2.3	2/20/2004	effective ba	2	0.1	4482.6
20	BTpcpH	70.0	10.0	2.3	2/20/2004	effective ba	2	-0.5	4558.4
20	BTpcpI	70.0	10.0	2.3	2/20/2004	effective ba	2	-1.1	6239.2
20	BYpcpJ	150.0	20.0	5.0	2/20/2004	effective ba	2	-3.3	3049.6
20	BMpcpE	8	1	0	2/21/2004	effective ba	2	4.2	12238.3
20	BMpcpI	15	2	1	2/21/2004	effective ba	2	1.7	5908.1
20	AT	2.0	0.3	0.1	2/22/2004	effective ba	1	7.3	NS
14	AF	120.0	17.1	4.0	2/23/2004	area 12 (so	1	7.3	562.0
20	ATpcpC	6	1	0	2/23/2004	effective ba	2	4.7	524.0
20	BMpcpD	6	1	0	2/23/2004	effective ba	2	4.8	15192.3

Row	Well	days	Travel time wks	mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm
20	BMpcpJ	18.0	2.6	0.6	2/2/2003	effective basin	2	0.8	145.0
20	BTpcpK	80.0	11.4	2.7	2/2/2003	effective basin	2	-4.2	1590.0
20	BCh	17.0	2.4	0.6	2/3/2003	effective basin	1	5.0	1794.0
20	BMe	17.0	2.4	0.6	2/3/2003	effective basin	2	1.5	119.0
21	BUpcpI	120.0	16.0	4.0	2/3/2003	effective basin	2	-1.6	2180.0
20	BYpcpA	120.0	17.1	4.0	2/3/2003	effective basin	1	5.8	3664.3
20	BYpcpB	120.0	16.0	4.0	2/3/2003	effective basin	2	4.3	740.0
20	BYpcpC	120.0	16.0	4.0	2/3/2003	effective basin	2	2.8	1472.0
22	BIpcpA	420.0	56.0	14.0	2/4/2003	by back fence area, runoff b/tw BK/BS	1	6.0	1932.4
20	BCf	15.0	2.1	0.5	2/5/2003	effective basin	1	6.8	1190.0
21	BCj	42.0	6.0	1.4	2/5/2003	effective basin	2	-0.2	2173.0
20	BMpcpI	15.0	2.1	0.5	2/5/2003	effective basin	2	1.7	596.0
21	BCpcpD	40.0	5.7	1.3	2/6/2003	effective basin	2	2.6	640.0
21	BCpcpE	40.0	5.7	1.3	2/6/2003	effective basin	2	1.0	1990.0
21	BCpcpF	40.0	5.7	1.3	2/6/2003	effective basin	2	0.4	1660.0
21	BCpcpG	40.0	5.7	1.3	2/6/2003	effective basin	2	-0.2	989.0
10	AI	200	29	7	2/7/2003	b/tw areas 6/16, N of ramp, S of shoulder	1	8.1	135.0
20	BCd	40.0	5.7	1.3	2/7/2003	effective basin	2	0.2	589.0
20	BCe	40.0	5.7	1.3	2/7/2003	effective basin	2	-1.6	917.0
20	BMpcpH	13.0	1.9	0.4	2/7/2003	effective basin	2	2.3	1075.0
20	BTpcpJ	75.0	10.7	2.5	2/7/2003	effective basin	2	-2.6	1301.0
21	BCpcpC	30.0	4.3	1.0	2/8/2003	effective basin	2	4.1	1701.0
22	BIpcpA	420.0	56.0	14.0	2/9/2003	by back fence area, runoff b/tw BK/BS	1	6.0	1959.1
20	BMc	11.0	1.6	0.4	2/9/2003	effective basin	2	3.0	374.0
20	BMpcpG	11.0	1.6	0.4	2/9/2003	effective basin	2	2.9	420.0
19	BMd	10.0	1.4	0.3	2/10/2003	effective basin	2	2.1	134.0
20	BYpcpJ	150.0	20.0	5.0	2/10/2003	effective basin	2	-3.3	225.0
20	BMb	9.0	1.3	0.3	2/11/2003	effective basin	2	3.9	390.0
20	BMpcpF	9.0	1.3	0.3	2/11/2003	effective basin	2	3.6	424.0
21	BE	35.0	5.0	1.2	2/12/2003	effective basin	2	-0.5	1861.0
20	BMpcpE	8.0	1.1	0.3	2/12/2003	effective basin	2	4.2	1430.0
20	BTg	70.0	10.0	2.3	2/12/2003	effective basin	2	-0.1	351.4
20	BTh	70.0	10.0	2.3	2/12/2003	effective basin	2	-1.0	736.0
20	BTpcpD	70.0	10.0	2.3	2/12/2003	effective basin	2	1.9	991.0
20	BTpcpE	70.0	10.0	2.3	2/12/2003	effective basio	2	1.3	753.0
20	BTpcpF	70.0	10.0	2.3	2/12/2003	effective basin	2	0.7	1266.0
20	BTpcpG	70.0	10.0	2.3	2/12/2003	effective basin	2	0.1	680.0
20	BTpcpH	70.0	10.0	2.3	2/12/2003	effective basin	2	-0.5	1277.0
20	BTpcpI	70.0	10.0	2.3	2/12/2003	effective basin	2	-1.1	1579.0
21	BCpcpA	25.0	3.6	0.8	2/13/2003	effective basin	1	7.1	1117.6
21	BCpcpB	25.0	3.6	0.8	2/13/2003	effective basin	1	5.6	3864.0
19	BMa	7.0	1.0	0.2	2/13/2003	effective basin	1	4.8	1153.0
20	BMpcpK	25.0	3.6	0.8	2/13/2003	effective basin	2	-0.7	496.0
21	BUpcpA	110.0	14.7	3.7	2/13/2003	effective basin	1	6.0	383.1
21	BUpcpB	110.0	14.7	3.7	2/13/2003	effective basin	2	4.5	493.0
21	BUpcpC	110.0	14.7	3.7	2/13/2003	effective basin	2	3.0	167.0
21	BUpcpD	110.0	14.7	3.7	2/13/2003	effective basin	2	1.5	4624.0
21	BUpcpE	110.0	14.7	3.7	2/13/2003	effective basin	2	0.9	5303.0
21	BUpcpF	110.0	14.7	3.7	2/13/2003	effective basin	2	0.2	5571.0
21	BUpcpG	110.0	14.7	3.7	2/13/2003	effective basin	2	-0.4	2607.0
21	BUpcpH	110.0	14.7	3.7	2/13/2003	effective basin	2	-1.0	3131.0
20	ATpcpC	6.0	0.9	0.2	2/14/2003	effective basin	2	4.7	276.0
20	BMpcpD	6.0	0.9	0.2	2/14/2003	effective basin	2	4.8	1613.0
20	BTf	68.0	9.7	2.3	2/14/2003	effective basin	2	0.7	436.4
20	ATpcpB	5.0	0.7	0.2	2/15/2003	effective basin	1	5.3	2866.0
22	BIpcpA	420.0	56.0	14.0	2/15/2003	by back fence area, runoff b/tw BK/BS	1	6.0	647.9
20	BMpcpC	5.0	0.7	0.2	2/15/2003	effective basin	1	5.4	1231.0
21	BUpcpI	120.0	16.0	4.0	2/15/2003	effective basin	2	-1.6	1741.0
21	BZ	120.0	17.1	4.0	2/15/2003	effective basin	1	6.7	479.8
21	BCpcpC	30.0	4.3	1.0	2/16/2003	effective basin	2	4.1	5861.0
20	BYpcpJ	150.0	20.0	5.0	2/16/2003	effective basin	2	-3.3	241.0
9	AC	190	27	6	2/17/2003	b/tw areas 6/16, N of ramp, S of shoulder	1	8.2	100.0
18	AP	30.0	4.3	1.0	2/17/2003	effective basin	1	8.0	394.0
20	ATpcpA	3.0	0.4	0.1	2/17/2003	effective basin	1	6.8	304.2
20	BCi	30.0	4.3	1.0	2/17/2003	effective basin	2	1.1	686.0
20	BMpcpB	3.0	0.4	0.1	2/17/2003	effective basin	1	6.0	374.0
21	BTa	65.0	9.3	2.2	2/17/2003	effective basin	1	5.4	2113.0
21	BTb	65.0	9.3	2.2	2/17/2003	effective basin	2	4.4	2734.0
21	BTc	65.0	9.3	2.2	2/17/2003	effective basin	2	3.6	2010.0
21	BTd	65.0	9.3	2.2	2/17/2003	effective basin	2	2.7	1473.0

Row	Well	days	Travel time wks	mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm
20	BMpcpH	13	2	0	2/23/2004	effective ba	2	2.3	2278.9
20	BMpcpJ	18.0	2.6	0.6	2/23/2004	effective ba	2	0.8	287.0
21	BUpcpI	120.0	16.0	4.0	2/23/2004	effective ba	2	-1.6	211.5
20	BYpcpA	120.0	17.1	4.0	2/23/2004	effective ba	1	5.8	1977.9
20	BYpcpB	120.0	16.0	4.0	2/23/2004	effective ba	2	4.3	2318.7
20	BYpcpC	120.0	16.0	4.0	2/23/2004	effective ba	2	2.8	1861.1
21	BZ	120.0	17.1	4.0	2/23/2004	effective ba	1	6.7	1471.0
8	AB	35.0	5.0	1.2	2/24/2004	west of rest	1	8.0	184.0
20	ATpcpB	5	1	0	2/24/2004	effective ba	1	5.3	2938.7
21	BCpcpD	40.0	5.7	1.3	2/24/2004	effective ba	2	2.6	1178.1
21	BCpcpE	40.0	5.7	1.3	2/24/2004	effective ba	2	1.0	3483.4
21	BCpcpF	40.0	5.7	1.3	2/24/2004	effective ba	2	0.4	3073.9
21	BCpcpG	40.0	5.7	1.3	2/24/2004	effective ba	2	-0.2	3708.5
21	BE	35.0	5.0	1.2	2/24/2004	effective ba	2	-0.5	1418.0
20	BMpcpC	5	1	0	2/24/2004	effective ba	1	5.4	7174.2
20	BTpcpJ	75	11	3	2/24/2004	effective ba	2	-2.6	5831.2
20	BYpcpI	140.0	18.7	4.7	2/24/2004	effective ba	2	-1.8	1002.1
13	AH	90.0	12.9	3.0	2/25/2004	area 12 (sot	1	7.4	807.0
21	BCpcpA	25.0	3.6	0.8	2/25/2004	effective ba	1	7.1	1466.8
21	BCpcpB	25.0	3.6	0.8	2/25/2004	effective ba	1	5.6	4293.4
20	BMpcpG	11	2	0	2/25/2004	effective ba	2	2.9	1012.8
20	BMpcpK	25.0	3.6	0.8	2/25/2004	effective ba	2	-0.7	244.8
20	BTj	90.0	12.9	3.0	2/25/2004	effective ba	2	-3.7	3107.0
21	BUpcpA	110.0	14.7	3.7	2/25/2004	effective ba	1	6.0	1367.1
21	BUpcpB	110.0	14.7	3.7	2/25/2004	effective ba	2	4.5	1299.6
21	BUpcpC	110.0	14.7	3.7	2/25/2004	effective ba	2	3.0	428.2
21	BUpcpD	110.0	14.7	3.7	2/25/2004	effective ba	2	1.5	364.7
21	BUpcpE	110.0	14.7	3.7	2/25/2004	effective ba	2	0.9	313.6
21	BUpcpF	110.0	14.7	3.7	2/25/2004	effective ba	2	0.2	281.3
21	BUpcpG	110.0	14.7	3.7	2/25/2004	effective ba	2	-0.4	327.8
21	BUpcpH	110.0	14.7	3.7	2/25/2004	effective ba	2	-1.0	249.8
20	ATpcpA	3	0	0	2/26/2004	effective ba	1	6.8	5129.8
20	BMpcpB	3	0	0	2/26/2004	effective ba	1	6.0	1856.8
20	BMpcpI	15.0	2.1	0.5	2/26/2004	effective ba	2	1.7	2025.6
20	BTpcpK	80.0	11.4	2.7	2/26/2004	effective ba	2	-4.2	5286.6
20	BMpcpF	9	1	0	2/27/2004	effective ba	2	3.6	1308.2
20	BMpcpA	1	0	0	2/28/2004	effective ba	1	6.9	5908.1
20	BMpcpE	8	1	0	2/28/2004	effective ba	2	4.2	886.2
20	BMpcpH	13.0	1.9	0.4	2/28/2004	effective ba	2	2.3	717.4
20	BYpcpD	130	17	4	2/28/2004	effective ba	2	1.3	350.7
20	BYpcpE	130	17	4	2/28/2004	effective ba	2	0.7	432.2
20	BYpcpF	130	17	4	2/28/2004	effective ba	2	0.0	724.5
20	BYpcpG	130	17	4	2/28/2004	effective ba	2	-0.6	67.4
20	BYpcpH	130	17	4	2/28/2004	effective ba	2	-1.2	1315.2
18	AP	30.0	4.3	1.0	2/29/2004	effective ba	1	8.0	775.0
20	BCi	30.0	4.3	1.0	2/29/2004	effective ba	2	1.1	3476.0
21	BCpcpC	30.0	4.3	1.0	2/29/2004	effective ba	2	4.1	1524.2
22	BG	30.0	4.3	1.0	2/29/2004	effective ba	1	7.6	339.0
20	BTpcpD	70	10	2	2/29/2004	effective ba	2	1.9	5176.0
20	BTpcpE	70	10	2	2/29/2004	effective ba	2	1.3	3461.0
20	BTpcpF	70	10	2	2/29/2004	effective ba	2	0.7	4197.3
20	BTpcpG	70	10	2	2/29/2004	effective ba	2	0.1	3951.8
20	BTpcpH	70	10	2	2/29/2004	effective ba	2	-0.5	3717.9
20	BTpcpI	70	10	2	2/29/2004	effective ba	2	-1.1	5099.8
20	BYpcpJ	150.0	20.0	5.0	2/29/2004	effective ba	2	-3.3	963.3
19	CB	240.0	34.3	8.0	2/29/2004	N of WB la	1	8.6	261.0
15	AO	50.0	7.1	1.7	3/1/2004	near BO ch	1	8.2	247.0
20	ATpcpC	6	1	0	3/1/2004	effective ba	2	4.7	464.8
21	BCpcpD	40.0	5.7	1.3	3/1/2004	effective ba	2	2.6	1266.7
21	BCpcpE	40.0	5.7	1.3	3/1/2004	effective ba	2	1.0	2944.4
21	BCpcpF	40.0	5.7	1.3	3/1/2004	effective ba	2	0.4	2201.5
21	BCpcpG	40.0	5.7	1.3	3/1/2004	effective ba	2	-0.2	2728.5
21	BCpcpH	50	7	2	3/1/2004	effective ba	2	-0.8	2803.9
21	BCpcpI	50	7	2	3/1/2004	effective ba	2	-1.4	4971.3
21	BCpcpJ	50	7	2	3/1/2004	effective ba	2	-2.0	5856.1
20	BMpcpD	6	1	0	3/1/2004	effective ba	2	4.8	5064.1
20	BMpcpG	11.0	1.6	0.4	3/1/2004	effective ba	2	2.9	717.4
20	BTk	50.0	7.1	1.7	3/1/2004	effective ba	1	7.3	258.0
20	BTpcpA	50	7	2	3/1/2004	effective ba	1	6.5	174.7

Row	Well	Travel time days	wks	mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm
20	BTe	65.0	9.3	2.2	2/17/2003	effective basin	2	1.7	760.0
20	AT	2.0	0.3	0.1	2/18/2003	effective basin	1	7.3	799.0
20	BMpcpA	1.0	0.1	0.0	2/19/2003	effective basin	1	6.9	1690.0
14	AN	210.0	30.0	7.0	2/20/2003	area 12 (south shoulder of EB lane)	1	8.0	170.0
20	BMpcpJ	18.0	2.6	0.6	2/20/2003	effective basin	2	0.8	1045.0
20	BYpcpI	140.0	18.7	4.7	2/20/2003	effective basin	2	-1.8	227.0
20	BYpcpJ	150.0	20.0	5.0	2/20/2003	effective basin	2	-3.3	277.0
24	AR	300	43	10	2/21/2003	N of WB lane, N of median 8	1	8.1	84.0
21	BCpcpA	25.0	3.6	0.8	2/21/2003	effective basin	1	7.1	9248.1
21	BCpcpB	25.0	3.6	0.8	2/21/2003	effective basin	1	5.6	5945.0
20	BMpcpK	25.0	3.6	0.8	2/21/2003	effective basin	2	-0.7	630.0
20	BCg	25.0	3.6	0.8	2/22/2003	effective basin	2	2.9	1957.0
20	BTj	90.0	12.9	3.0	2/22/2003	effective basin	2	-3.7	488.8
20	BTpcpC	60.0	8.6	2.0	2/22/2003	effective basin	2	3.5	1119.0
20	BMpcpI	15.0	2.1	0.5	2/23/2003	effective basin	2	1.7	922.0
22	AQ	330.0	47.1	11.0	2/24/2003	N of WB lane, near 4 UG wells across rd	1	8.2	179.0
22	BIpcpA	420	56	14	2/25/2003	by back fence area, runoff b/tw BK/BS	1	6.0	1444.9
20	BMpcpH	13.0	1.9	0.4	2/25/2003	effective basin	2	2.3	736.0
21	BUpcpA	110.0	14.7	3.7	2/25/2003	effective basin	1	6.0	521.0
21	BUpcpB	110.0	14.7	3.7	2/25/2003	effective basin	2	4.5	213.0
21	BUpcpC	110.0	14.7	3.7	2/25/2003	effective basin	2	3.0	3009.0
21	BUpcpD	110.0	14.7	3.7	2/25/2003	effective basin	2	1.5	6239.0
21	BUpcpE	110.0	14.7	3.7	2/25/2003	effective basin	2	0.9	2927.0
21	BUpcpF	110.0	14.7	3.7	2/25/2003	effective basin	2	0.2	4335.0
21	BUpcpG	110.0	14.7	3.7	2/25/2003	effective basin	2	-0.4	4653.0
21	BUpcpH	110.0	14.7	3.7	2/25/2003	effective basin	2	-1.0	1757.0
20	BYpcpI	140.0	18.7	4.7	2/26/2003	effective basin	2	-1.8	247.0
19	BCa	20.0	2.9	0.7	2/27/2003	effective basin	1	6.0	3469.0
19	BCb	20.0	2.9	0.7	2/27/2003	effective basin	2	3.6	5030.0
20	BCc	20.0	2.9	0.7	2/27/2003	effective basin	2	2.0	1620.0
21	BD	20.0	2.9	0.7	2/27/2003	effective basin	1	5.6	3222.0
20	BMpcpG	11.0	1.6	0.4	2/27/2003	effective basin	2	2.9	549.0
20	BMpcpJ	18.0	2.6	0.6	2/28/2003	effective basin	2	0.8	1512.0
20	BMpcpF	9.0	1.3	0.3	3/1/2003	effective basin	2	3.6	487.0
20	BYpcpJ	150.0	20.0	5.0	3/1/2003	effective basin	2	-3.3	274.0
10	AI	200.0	28.6	6.7	3/2/2003	b/tw areas 6/16, N of ramp, S of shoulder	1	8.1	229.0
20	BCh	17.0	2.4	0.6	3/2/2003	effective basin	1	5.0	717.0
20	BMe	17.0	2.4	0.6	3/2/2003	effective basin	2	1.5	689.0
20	BMpcpE	8.0	1.1	0.3	3/2/2003	effective basin	2	4.2	567.0
20	BTpcpK	80.0	11.4	2.7	3/2/2003	effective basin	2	-4.2	3427.0
20	BYpcpD	130.0	17.3	4.3	3/2/2003	effective basin	2	1.3	698.0
20	BYpcpE	130.0	17.3	4.3	3/2/2003	effective basin	2	0.7	731.0
20	BYpcpF	130.0	17.3	4.3	3/2/2003	effective basin	2	0.0	1083.0
20	BYpcpG	130.0	17.3	4.3	3/2/2003	effective basin	2	-0.6	419.0
20	BYpcpH	130.0	17.3	4.3	3/2/2003	effective basin	2	-1.2	289.0
20	BYpcpI	140.0	18.7	4.7	3/2/2003	effective basin	2	-1.8	270.0
20	BMpcpI	15.0	2.1	0.5	3/3/2003	effective basin	2	1.7	872.0
21	BUpcpI	120.0	16.0	4.0	3/3/2003	effective basin	2	-1.6	982.0
11	AK	240.0	34.3	8.0	3/4/2003	@ E BC, east of median 13 area	1	7.4	421.0
20	ATpcpC	6.0	0.9	0.2	3/4/2003	effective basin	2	4.7	11968.0
20	BCf	15.0	2.1	0.5	3/4/2003	effective basin	1	6.8	2299.0
21	BCpcpH	50.0	7.1	1.7	3/4/2003	effective basin	2	-0.8	1022.0
21	BCpcpI	50.0	7.1	1.7	3/4/2003	effective basin	2	-1.4	853.0
21	BCpcpJ	50.0	7.1	1.7	3/4/2003	effective basin	2	-2.0	1239.0
20	BMpcpD	6.0	0.9	0.2	3/4/2003	effective basin	2	4.8	756.0
20	BTk	50.0	7.1	1.7	3/4/2003	effective basin	1	7.3	1484.0
20	BTpcpA	50.0	7.1	1.7	3/4/2003	effective basin	1	6.5	1587.3
20	BTpcpB	50.0	7.1	1.7	3/4/2003	effective basin	2	5.0	1583.0
21	CB	240.0	34.3	8.0	3/4/2003	N of WB lane, near 4 UG wells across rd	1	8.6	359.0
20	ATpcpB	5.0	0.7	0.2	3/5/2003	effective basin	1	5.3	3220.0
20	BMpcpC	5.0	0.7	0.2	3/5/2003	effective basin	1	5.4	882.0
20	BMpcpH	13.0	1.9	0.4	3/5/2003	effective basin	2	2.3	810.0
20	ATpcpA	3.0	0.4	0.1	3/7/2003	effective basin	1	6.8	698.5
22	BIpcpA	420.0	56.0	14.0	3/7/2003	by back fence area, runoff b/tw BK/BS	1	6.0	1403.1
20	BMpcpB	3.0	0.4	0.1	3/7/2003	effective basin	1	6.0	386.0
20	BMpcpG	11.0	1.6	0.4	3/7/2003	effective basin	2	2.9	587.0
20	BTpcpJ	75.0	10.7	2.5	3/7/2003	effective basin	2	-2.6	3316.0
20	BMc	11.0	1.6	0.4	3/8/2003	effective basin	2	3.0	114.0
20	BYpcpD	130.0	17.3	4.3	3/8/2003	effective basin	2	1.3	292.0

Row	Well	Travel time days	wks	mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm
20	BTpcpB	50	7	2	3/1/2004	effective ba	2	5.0	840.1
20	BTpcpC	60.0	8.6	2.0	3/1/2004	effective ba	2	3.5	3000.7
20	BYpcpI	140.0	18.7	4.7	3/1/2004	effective ba	2	-1.8	565.6
20	ATpcpB	5	1	0	3/2/2004	effective ba	1	5.3	2800.2
20	BMpcpC	5	1	0	3/2/2004	effective ba	1	5.4	2321.1
20	BTpcpJ	75.0	10.7	2.5	3/2/2004	effective ba	2	-2.6	6963.7
20	BMpcpF	9.0	1.3	0.3	3/3/2004	effective ba	2	3.6	1223.8
20	BMpcpJ	18.0	2.6	0.6	3/3/2004	effective ba	2	0.8	464.2
20	ATpcpA	3	0	0	3/4/2004	effective ba	1	6.8	2359.8
20	BMpcpB	3	0	0	3/4/2004	effective ba	1	6.0	1434.8
20	BMpcpE	8.0	1.1	0.3	3/4/2004	effective ba	2	4.2	2658.7
21	BUpcpA	110.0	14.7	3.7	3/4/2004	effective ba	1	6.0	1483.4
21	BUpcpB	110.0	14.7	3.7	3/4/2004	effective ba	2	4.5	1057.1
21	BUpcpC	110.0	14.7	3.7	3/4/2004	effective ba	2	3.0	429.5
21	BUpcpD	110.0	14.7	3.7	3/4/2004	effective ba	2	1.5	278.0
21	BUpcpE	110.0	14.7	3.7	3/4/2004	effective ba	2	0.9	248.8
21	BUpcpF	110.0	14.7	3.7	3/4/2004	effective ba	2	0.2	239.4
21	BUpcpG	110.0	14.7	3.7	3/4/2004	effective ba	2	-0.4	224.9
21	BUpcpH	110.0	14.7	3.7	3/4/2004	effective ba	2	-1.0	201.7
12	AG	130.0	18.6	4.3	3/5/2004	area 12 (sou	1	7.3	345.0
20	BCg	25.0	3.6	0.8	3/5/2004	effective ba	2	2.9	3296.0
21	BCpcpA	25.0	3.6	0.8	3/5/2004	effective ba	1	7.1	897.2
21	BCpcpB	25.0	3.6	0.8	3/5/2004	effective ba	1	5.6	33120.5
21	BCpcpC	30.0	4.3	1.0	3/5/2004	effective ba	2	4.1	1554.1
20	BMpcpK	25.0	3.6	0.8	3/5/2004	effective ba	2	-0.7	202.6
20	BYpcpD	130.0	17.3	4.3	3/5/2004	effective ba	2	1.3	289.0
20	BYpcpE	130.0	17.3	4.3	3/5/2004	effective ba	2	0.7	244.9
20	BYpcpF	130.0	17.3	4.3	3/5/2004	effective ba	2	0.0	505.5
20	BYpcpG	130.0	17.3	4.3	3/5/2004	effective ba	2	-0.6	44.9
20	BYpcpH	130.0	17.3	4.3	3/5/2004	effective ba	2	-1.2	1028.4
20	CA	160.0	22.9	5.3	3/5/2004	rest area, n	1	6.1	320.0
16	AS	80.0	11.4	2.7	3/6/2004	area 12 (sou	1	7.4	735.0
20	ATpcpC	6.0	0.9	0.2	3/6/2004	effective ba	2	4.7	347.4
20	BMpcpA	1	0	0	3/6/2004	effective ba	1	6.9	3038.5
20	BMpcpD	6.0	0.9	0.2	3/6/2004	effective ba	2	4.8	5908.1
20	BMpcpI	15.0	2.1	0.5	3/6/2004	effective ba	2	1.7	1139.4
20	BTpcpK	80.0	11.4	2.7	3/6/2004	effective ba	2	-4.2	6013.5
20	BYpcpJ	150.0	20.0	5.0	3/6/2004	effective ba	2	-3.3	581.4
20	ATpcpB	5.0	0.7	0.2	3/7/2004	effective ba	1	5.3	2723.7
20	BMpcpC	5.0	0.7	0.2	3/7/2004	effective ba	1	5.4	2447.7
20	BTpcpD	70.0	10.0	2.3	3/7/2004	effective ba	2	1.9	5302.8
20	BTpcpE	70.0	10.0	2.3	3/7/2004	effective ba	2	1.3	3888.7
20	BTpcpF	70.0	10.0	2.3	3/7/2004	effective ba	2	0.7	4293.4
20	BTpcpG	70.0	10.0	2.3	3/7/2004	effective ba	2	0.1	4368.3
20	BTpcpH	70.0	10.0	2.3	3/7/2004	effective ba	2	-0.5	4128.4
20	BTpcpI	70.0	10.0	2.3	3/7/2004	effective ba	2	-1.1	4845.4
20	BMpcpH	13.0	1.9	0.4	3/8/2004	effective ba	2	2.3	590.8
20	ATpcpA	3.0	0.4	0.1	3/9/2004	effective ba	1	6.8	3181.7
21	BCj	42.0	6.0	1.4	3/9/2004	effective ba	2	-0.2	3573.0
20	BMpcpB	3.0	0.4	0.1	3/9/2004	effective ba	1	6.0	3587.1
21	BUpcpI	120	16	4	3/9/2004	effective ba	2	-1.6	157.2
20	BYpcpA	120	17	4	3/9/2004	effective ba	1	5.8	1525.3
20	BYpcpB	120	16	4	3/9/2004	effective ba	2	4.3	601.3
20	BYpcpC	120	16	4	3/9/2004	effective ba	2	2.8	352.4
19	BCa	20.0	2.9	0.7	3/10/2004	effective ba	1	6.0	4294.0
19	BCb	20.0	2.9	0.7	3/10/2004	effective ba	2	3.6	4747.0
20	BCc	20.0	2.9	0.7	3/10/2004	effective ba	2	2.0	5460.0
21	BCpcpA	25.0	3.6	0.8	3/10/2004	effective ba	1	7.1	653.0
21	BCpcpB	25.0	3.6	0.8	3/10/2004	effective ba	1	5.6	3696.3
21	BD	20.0	2.9	0.7	3/10/2004	effective ba	1	5.6	1979.0
20	BMpcpG	11.0	1.6	0.4	3/10/2004	effective ba	2	2.9	970.6
20	BMpcpK	25.0	3.6	0.8	3/10/2004	effective ba	2	-0.7	227.9
20	BTpcpC	60	9	2	3/10/2004	effective ba	2	3.5	2683.5
20	BYpcpI	140.0	18.7	4.7	3/10/2004	effective ba	2	-1.8	410.4
20	BCd	40.0	5.7	1.3	3/11/2004	effective ba	2	0.2	6040.0
20	BCe	40.0	5.7	1.3	3/11/2004	effective ba	2	-1.6	4840.0
21	BCpcpC	30.0	4.3	1.0	3/11/2004	effective ba	2	4.1	1706.4
21	BCpcpD	40	6	1	3/11/2004	effective ba	2	2.6	4185.6
21	BCpcpE	40	6	1	3/11/2004	effective ba	2	1.0	5700.0
21	BCpcpF	40	6	1	3/11/2004	effective ba	2	0.4	5039.1

Row	Well	Travel time days	wks	mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm
20	BYpcpE	130.0	17.3	4.3	3/8/2003	effective basin	2	0.7	265.0
20	BYpcpF	130.0	17.3	4.3	3/8/2003	effective basin	2	0.0	288.0
20	BYpcpG	130.0	17.3	4.3	3/8/2003	effective basin	2	-0.6	27.0
20	BYpcpH	130.0	17.3	4.3	3/8/2003	effective basin	2	-1.2	295.0
19	BMd	10.0	1.4	0.3	3/9/2003	effective basin	2	2.1	264.0
20	BMpcpA	1.0	0.1	0.0	3/9/2003	effective basin	1	6.9	1327.1
20	BMpcpF	9.0	1.3	0.3	3/9/2003	effective basin	2	3.6	461.0
19	BN	10.0	1.4	0.3	3/9/2003	effective basin	2	1.8	561.0
20	BMb	9.0	1.3	0.3	3/10/2003	effective basin	2	3.9	316.0
20	BMpcpE	8.0	1.1	0.3	3/10/2003	effective basin	2	4.2	632.0
20	BYpcpI	140.0	18.7	4.7	3/11/2003	effective basin	2	-1.8	253.0
9	AC	190.0	27.1	6.3	3/12/2003	b/tw areas 6/16, N of ramp, S of shoulder	1	8.2	197.0
20	ATpcpC	6.0	0.9	0.2	3/12/2003	effective basin	2	4.7	1107.0
21	BCj	42.0	6.0	1.4	3/12/2003	effective basin	2	-0.2	1711.0
19	BMa	7.0	1.0	0.2	3/12/2003	effective basin	1	4.8	293.0
20	BMpcpD	6.0	0.9	0.2	3/12/2003	effective basin	2	4.8	832.0
20	BTpcpD	70.0	10.0	2.3	3/12/2003	effective basin	2	1.9	2264.0
20	BTpcpE	70.0	10.0	2.3	3/12/2003	effective basin	2	1.3	2159.0
20	BTpcpF	70.0	10.0	2.3	3/12/2003	effective basin	2	0.7	999.0
20	BTpcpG	70.0	10.0	2.3	3/12/2003	effective basin	2	0.1	1350.0
20	BTpcpH	70.0	10.0	2.3	3/12/2003	effective basin	2	-0.5	1098.0
20	BTpcpI	70.0	10.0	2.3	3/12/2003	effective basin	2	-1.1	3001.0
21	BUpcpI	120.0	16.0	4.0	3/12/2003	effective basin	2	-1.6	217.0
20	BYpcpA	120.0	17.1	4.0	3/12/2003	effective basin	1	5.8	912.5
20	BYpcpB	120.0	16.0	4.0	3/12/2003	effective basin	2	4.3	2394.0
20	BYpcpC	120.0	16.0	4.0	3/12/2003	effective basin	2	2.8	703.0
20	BYpcpD	130.0	17.3	4.3	3/12/2003	effective basin	2	1.3	542.0
20	BYpcpE	130.0	17.3	4.3	3/12/2003	effective basin	2	0.7	1949.0
20	BYpcpF	130.0	17.3	4.3	3/12/2003	effective basin	2	0.0	2363.0
20	BYpcpG	130.0	17.3	4.3	3/12/2003	effective basin	2	-0.6	39.0
20	BYpcpH	130.0	17.3	4.3	3/12/2003	effective basin	2	-1.2	80.0
21	BZ	120.0	17.1	4.0	3/12/2003	effective basin	1	6.7	1019.0
20	ATpcpB	5.0	0.7	0.2	3/13/2003	effective basin	1	5.3	2708.0
20	BMpcpC	5.0	0.7	0.2	3/13/2003	effective basin	1	5.4	847.0
21	BUpcpA	110.0	14.7	3.7	3/13/2003	effective basin	1	6.0	802.7
21	BUpcpB	110.0	14.7	3.7	3/13/2003	effective basin	2	4.5	2980.0
21	BUpcpC	110.0	14.7	3.7	3/13/2003	effective basin	2	3.0	852.0
21	BUpcpD	110.0	14.7	3.7	3/13/2003	effective basin	2	1.5	2216.0
21	BUpcpE	110.0	14.7	3.7	3/13/2003	effective basin	2	0.9	2955.0
21	BUpcpF	110.0	14.7	3.7	3/13/2003	effective basin	2	0.2	1933.0
21	BUpcpG	110.0	14.7	3.7	3/13/2003	effective basin	2	-0.4	2038.0
21	BUpcpH	110.0	14.7	3.7	3/13/2003	effective basin	2	-1.0	988.0
20	BCd	40.0	5.7	1.3	3/14/2003	effective basin	2	0.2	491.0
20	BCe	40.0	5.7	1.3	3/14/2003	effective basin	2	-1.6	957.0
21	BCpcpD	40.0	5.7	1.3	3/14/2003	effective basin	2	2.6	892.0
21	BCpcpE	40.0	5.7	1.3	3/14/2003	effective basin	2	1.0	5239.0
21	BCpcpF	40.0	5.7	1.3	3/14/2003	effective basin	2	0.4	2922.0
21	BCpcpG	40.0	5.7	1.3	3/14/2003	effective basin	2	-0.2	1522.0
20	BTg	70.0	10.0	2.3	3/14/2003	effective basin	2	-0.1	1163.0
20	BTh	70.0	10.0	2.3	3/14/2003	effective basin	2	-1.0	938.0
20	ATpcpA	3.0	0.4	0.1	3/15/2003	effective basin	1	6.8	320.1
20	BMpcpB	3.0	0.4	0.1	3/15/2003	effective basin	1	6.0	310.0
20	BTpcpK	80.0	11.4	2.7	3/15/2003	effective basin	2	-4.2	2427.0
11	AK	240.0	34.3	8.0	3/16/2003	@ E BC, east of median 13 area	1	7.4	383.0
22	BIpcpA	420	56	14	3/16/2003	by back fence area, runoff b/tw BK/BS	1	6.0	2590.2
20	BTf	68.0	9.7	2.3	3/16/2003	effective basin	2	0.7	996.0
21	CB	240.0	34.3	8.0	3/16/2003	N of WB lane, near 4 UG wells across rd	1	8.6	283.0
20	AT	2.0	0.3	0.1	3/17/2003	effective basin	1	7.3	1227.0
20	BMpcpA	1.0	0.1	0.0	3/17/2003	effective basin	1	6.9	1102.7
20	BTj	90.0	12.9	3.0	3/17/2003	effective basin	2	-3.7	2016.0
21	BUpcpI	120.0	16.0	4.0	3/18/2003	effective basin	2	-1.6	196.0
20	BYpcpA	120.0	17.1	4.0	3/18/2003	effective basin	1	5.8	782.6
20	BYpcpB	120.0	16.0	4.0	3/18/2003	effective basin	2	4.3	472.0
20	BYpcpC	120.0	16.0	4.0	3/18/2003	effective basin	2	2.8	1273.0
7	AA	160	23	5	3/19/2003	rest area	1	8.4	341.0
21	BE	35.0	5.0	1.2	3/19/2003	effective basin	2	-0.5	3179.0
21	BTa	65.0	9.3	2.2	3/19/2003	effective basin	1	5.4	875.0
21	BTb	65.0	9.3	2.2	3/19/2003	effective basin	2	4.4	1260.0
21	BTc	65.0	9.3	2.2	3/19/2003	effective basin	2	3.6	1151.0
21	BTd	65.0	9.3	2.2	3/19/2003	effective basin	2	2.7	721.0

Row	Well	Travel time days	wks	mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm
21	BCpcpG	40	6	1	3/11/2004	effective ba	2	-0.2	3769.0
21	BCpcpH	50.0	7.1	1.7	3/11/2004	effective ba	2	-0.8	1172.2
21	BCpcpI	50.0	7.1	1.7	3/11/2004	effective ba	2	-1.4	1444.9
21	BCpcpJ	50.0	7.1	1.7	3/11/2004	effective ba	2	-2.0	1383.1
20	BMpcpA	1.0	0.1	-0.0	3/11/2004	effective ba	1	6.9	19412.4
20	BTpcpA	50.0	7.1	1.7	3/11/2004	effective ba	1	6.5	127.0
20	BTpcpB	50.0	7.1	1.7	3/11/2004	effective ba	2	5.0	884.0
20	BTpcpJ	75.0	10.7	2.5	3/11/2004	effective ba	2	-2.6	5423.8
20	BTpcpK	80.0	11.4	2.7	3/11/2004	effective ba	2	-4.2	5238.6
20	BYpcpD	130.0	17.3	4.3	3/11/2004	effective ba	2	1.3	275.7
20	BYpcpE	130.0	17.3	4.3	3/11/2004	effective ba	2	0.7	254.5
20	BYpcpF	130.0	17.3	4.3	3/11/2004	effective ba	2	0.0	291.5
20	BYpcpG	130.0	17.3	4.3	3/11/2004	effective ba	2	-0.6	34.0
20	BYpcpH	130.0	17.3	4.3	3/11/2004	effective ba	2	-1.2	630.5
20	BMpcpF	9.0	1.3	0.3	3/12/2004	effective ba	2	3.6	12660.3
20	BMpcpJ	18.0	2.6	0.6	3/12/2004	effective ba	2	0.8	261.6
20	BCh	17.0	2.4	0.6	3/13/2004	effective ba	1	5.0	3676.0
20	BMe	17.0	2.4	0.6	3/13/2004	effective ba	2	1.5	147.0
20	BMpcpE	8.0	1.1	0.3	3/13/2004	effective ba	2	4.2	13926.3
9	AD	150.0	21.4	5.0	3/15/2004	b/tw areas (	1	8.1	363.0
14	AF	120.0	17.1	4.0	3/15/2004	area 12 (sou	1	7.3	477.0
20	ATpcpC	6.0	0.9	0.2	3/15/2004	effective ba	2	4.7	259.0
20	BCf	15.0	2.1	0.5	3/15/2004	effective ba	1	6.8	1944.0
20	BMpcpD	6.0	0.9	0.2	3/15/2004	effective ba	2	4.8	15192.3
20	BMpcpI	15.0	2.1	0.5	3/15/2004	effective ba	2	1.7	1012.8
21	BUpcpI	120.0	16.0	4.0	3/15/2004	effective ba	2	-1.6	171.8
20	BYpcpA	120.0	17.1	4.0	3/15/2004	effective ba	1	5.8	920.9
20	BYpcpB	120.0	16.0	4.0	3/15/2004	effective ba	2	4.3	473.2
20	BYpcpC	120.0	16.0	4.0	3/15/2004	effective ba	2	2.8	307.1
20	BYpcpJ	150.0	20.0	5.0	3/15/2004	effective ba	2	-3.3	331.2
20	BZ	120.0	17.1	4.0	3/15/2004	effective ba	1	6.7	320.0
8	AB	35.0	5.0	1.2	3/16/2004	west of rest	1	8.0	112.0
11	AK	240.0	34.3	8.0	3/16/2004	@ E BC, ea	1	7.4	202.0
20	ATpcpB	5.0	0.7	0.2	3/16/2004	effective ba	1	5.3	2774.2
21	BCpcpA	25.0	3.6	0.8	3/16/2004	effective ba	1	7.1	818.4
21	BCpcpB	25.0	3.6	0.8	3/16/2004	effective ba	1	5.6	2325.1
21	BE	35.0	5.0	1.2	3/16/2004	effective ba	2	-0.5	5760.0
20	BMpcpC	5.0	0.7	0.2	3/16/2004	effective ba	1	5.4	15192.3
20	BMpcpK	25.0	3.6	0.8	3/16/2004	effective ba	2	-0.7	2869.7
20	BTg	70.0	10.0	2.3	3/16/2004	effective ba	2	-0.1	2939.0
20	BTh	70.0	10.0	2.3	3/16/2004	effective ba	2	-1.0	3196.0
20	BTpcpD	70.0	10.0	2.3	3/16/2004	effective ba	2	1.9	3546.0
20	BTpcpE	70.0	10.0	2.3	3/16/2004	effective ba	2	1.3	3040.3
20	BTpcpF	70.0	10.0	2.3	3/16/2004	effective ba	2	0.7	4229.3
20	BTpcpG	70.0	10.0	2.3	3/16/2004	effective ba	2	0.1	4567.8
20	BTpcpH	70.0	10.0	2.3	3/16/2004	effective ba	2	-0.5	3133.7
20	BTpcpI	70.0	10.0	2.3	3/16/2004	effective ba	2	-1.1	3461.0
20	BTpcpJ	75.0	10.7	2.5	3/16/2004	effective ba	2	-2.6	5222.8
20	BTpcpK	80.0	11.4	2.7	3/16/2004	effective ba	2	-4.2	2029.8
20	BYpcpI	140.0	18.7	4.7	3/16/2004	effective ba	2	-1.8	244.1
19	CB	240.0	34.3	8.0	3/16/2004	N of WB la	1	8.6	174.0
20	BMpcpH	13.0	1.9	0.4	3/17/2004	effective ba	2	2.3	548.6
20	BMpcpJ	18.0	2.6	0.6	3/17/2004	effective ba	2	0.8	2616.5
20	BTpcpC	60.0	8.6	2.0	3/17/2004	effective ba	2	3.5	3222.8
20	ATpcpA	3.0	0.4	0.1	3/18/2004	effective ba	1	6.8	2305.0
20	BMpcpB	3.0	0.4	0.1	3/18/2004	effective ba	1	6.0	23210.5
20	BTf	68.0	9.7	2.3	3/18/2004	effective ba	2	0.7	2139.0
12	AJ	11.0	1.6	0.4	3/19/2004	crest of bas	1	8.0	247.0
20	BMc	11.0	1.6	0.4	3/19/2004	effective ba	2	3.0	811.0
20	BMpcpG	11.0	1.6	0.4	3/19/2004	effective ba	2	2.9	8440.2
21	BUpcpA	110	15	4	3/19/2004	effective ba	1	6.0	704.0
21	BUpcpB	110	15	4	3/19/2004	effective ba	2	4.5	601.3
21	BUpcpC	110	15	4	3/19/2004	effective ba	2	3.0	458.2
21	BUpcpD	110	15	4	3/19/2004	effective ba	2	1.5	214.7
21	BUpcpE	110	15	4	3/19/2004	effective ba	2	0.9	216.1
21	BUpcpF	110	15	4	3/19/2004	effective ba	2	0.2	2173.5
21	BUpcpG	110	15	4	3/19/2004	effective ba	2	-0.4	195.5
21	BUpcpH	110	15	4	3/19/2004	effective ba	2	-1.0	162.7
21	BCpcpH	50	7	2	3/20/2004	effective ba	2	-0.8	5069.9
21	BCpcpI	50	7	2	3/20/2004	effective ba	2	-1.4	1699.9

Row	Well	Travel time days	wks	mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm
20	BYpcpA	120.0	17.1	4.0	7/2/2003	effective basin	1	5.8	471.1
20	BYpcpB	120.0	16.0	4.0	7/2/2003	effective basin	2	4.3	806.3
20	BYpcpC	120.0	16.0	4.0	7/2/2003	effective basin	2	2.8	321.0
21	BZ	120.0	17.1	4.0	7/2/2003	effective basin	1	6.7	631.0
19	BMa	7.0	1.0	0.2	7/3/2003	effective basin	1	4.8	938.0
20	BMpcpH	13.0	1.9	0.4	7/3/2003	effective basin	2	2.3	583.0
12	AG	130.0	18.6	4.3	7/4/2003	area 12 (south shoulder of EB lane)	1	7.3	266.0
10	AI	200.0	28.6	6.7	7/4/2003	b/tw areas 6/16, N of ramp, S of shoulder	1	8.1	290.0
20	ATpcpC	6.0	0.9	0.2	7/4/2003	effective basin	2	4.7	949.0
21	BCpcpA	25.0	3.6	0.8	7/4/2003	effective basin	1	7.1	298.4
21	BCpcpB	25	4	1	7/4/2003	effective basin	1	5.6	965.0
20	BMpcpD	6.0	0.9	0.2	7/4/2003	effective basin	2	4.8	3842.0
20	BMpcpK	25.0	3.6	0.8	7/4/2003	effective basin	2	-0.7	118.0
20	BTpcpC	60.0	8.6	2.0	7/4/2003	effective basin	2	3.5	1337.0
20	BYpcpD	130.0	17.3	4.3	7/4/2003	effective basin	2	1.3	492.9
20	BYpcpE	130.0	17.3	4.3	7/4/2003	effective basin	2	0.7	517.7
20	BYpcpF	130.0	17.3	4.3	7/4/2003	effective basin	2	0.0	530.5
20	BYpcpG	130.0	17.3	4.3	7/4/2003	effective basin	2	-0.6	20.1
20	BYpcpH	130.0	17.3	4.3	7/4/2003	effective basin	2	-1.2	530.7
20	ATpcpB	5.0	0.7	0.2	7/5/2003	effective basin	1	5.3	5472.0
20	BMpcpC	5.0	0.7	0.2	7/5/2003	effective basin	1	5.4	2284.0
20	BMpcpG	11.0	1.6	0.4	7/5/2003	effective basin	2	2.9	1129.0
20	BMpcpI	15.0	2.1	0.5	7/5/2003	effective basin	2	1.7	674.0
20	BTpcpJ	75.0	10.7	2.5	7/5/2003	effective basin	2	-2.6	196.7
15	AO	50	7	2	7/7/2003	near BO cluster, not "effective" area	1	8.2	175.0
20	ATpcpA	3.0	0.4	0.1	7/7/2003	effective basin	1	6.8	1186.2
21	BCpcpH	50.0	7.1	1.7	7/7/2003	effective basin	2	-0.8	129.5
21	BCpcpI	50.0	7.1	1.7	7/7/2003	effective basin	2	-1.4	97.9
21	BCpcpJ	50.0	7.1	1.7	7/7/2003	effective basin	2	-2.0	104.5
20	BMpcpB	3.0	0.4	0.1	7/7/2003	effective basin	1	6.0	1231.0
20	BMpcpF	9.0	1.3	0.3	7/7/2003	effective basin	2	3.6	1878.0
20	BMpcpH	13.0	1.9	0.4	7/7/2003	effective basin	2	2.3	369.0
20	BTk	50	7	2	7/7/2003	effective basin	1	7.3	483.0
20	BTpcpA	50.0	7.1	1.7	7/7/2003	effective basin	1	6.5	378.9
20	BTpcpB	50.0	7.1	1.7	7/7/2003	effective basin	2	5.0	642.1
20	BYpcpJ	150.0	20.0	5.0	7/7/2003	effective basin	2	-3.3	183.5
20	AT	2.0	0.3	0.1	7/8/2003	effective basin	1	7.3	1117.0
20	BMpcpE	8.0	1.1	0.3	7/8/2003	effective basin	2	4.2	3264.0
20	BMpcpA	1.0	0.1	0.0	7/9/2003	effective basin	1	6.9	790.8
20	BMpcpG	11.0	1.6	0.4	7/9/2003	effective basin	2	2.9	1273.0
20	ATpcpC	6.0	0.9	0.2	7/10/2003	effective basin	2	4.7	536.0
20	BMpcpD	6.0	0.9	0.2	7/10/2003	effective basin	2	4.8	3298.0
20	BTg	70.0	10.0	2.3	7/10/2003	effective basin	2	-0.1	160.0
20	BTh	70.0	10.0	2.3	7/10/2003	effective basin	2	-1.0	142.0
20	BTpcpD	70.0	10.0	2.3	7/10/2003	effective basin	2	1.9	877.8
20	BTpcpE	70.0	10.0	2.3	7/10/2003	effective basin	2	1.3	294.1
20	BTpcpF	70.0	10.0	2.3	7/10/2003	effective basin	2	0.7	192.1
20	BTpcpG	70.0	10.0	2.3	7/10/2003	effective basin	2	0.1	301.0
20	BTpcpH	70.0	10.0	2.3	7/10/2003	effective basin	2	-0.5	175.5
20	BTpcpI	70.0	10.0	2.3	7/10/2003	effective basin	2	-1.1	206.8
7	AA	160	23	5	7/11/2003	rest area	1	8.4	NS
20	ATpcpB	5.0	0.7	0.2	7/11/2003	effective basin	1	5.3	5392.0
22	BIpcpA	420.0	56.0	14.0	7/11/2003	by back fence area, runoff b/tw BK/BS	1	6.0	2431.6
20	BMpcpC	5.0	0.7	0.2	7/11/2003	effective basin	1	5.4	2915.0
20	BMpcpF	9.0	1.3	0.3	7/11/2003	effective basin	2	3.6	766.0
20	BMpcpJ	18.0	2.6	0.6	7/11/2003	effective basin	2	0.8	111.0
8	CA	160	23	5	7/11/2003	rest area, near E BC	1	6.1	219.0
20	BMpcpE	8.0	1.1	0.3	7/12/2003	effective basin	2	4.2	2957.0
20	BTf	68.0	9.7	2.3	7/12/2003	effective basin	2	0.7	143.0
21	BUpcpA	110.0	14.7	3.7	7/12/2003	effective basin	1	6.0	609.7
21	BUpcpB	110.0	14.7	3.7	7/12/2003	effective basin	2	4.5	752.5
21	BUpcpC	110.0	14.7	3.7	7/12/2003	effective basin	2	3.0	615.3
21	BUpcpD	110.0	14.7	3.7	7/12/2003	effective basin	2	1.5	626.9
21	BUpcpE	110.0	14.7	3.7	7/12/2003	effective basin	2	0.9	718.8
21	BUpcpF	110.0	14.7	3.7	7/12/2003	effective basin	2	0.2	478.0
21	BUpcpG	110.0	14.7	3.7	7/12/2003	effective basin	2	-0.4	944.0
21	BUpcpH	110.0	14.7	3.7	7/12/2003	effective basin	2	-1.0	288.9
20	ATpcpA	3.0	0.4	0.1	7/13/2003	effective basin	1	6.8	1203.9
20	BMpcpB	3.0	0.4	0.1	7/13/2003	effective basin	1	6.0	1719.0
9	AC	190.0	27.1	6.3	7/14/2003	b/tw areas 6/16, N of ramp, S of shoulder	1	8.2	137.0

Row	Well	Travel time days	wks	mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm
19	BCj	42.0	6.0	1.4	6/1/2004	effective ba	2	-0.2	508.0
20	BMpcpB	3.0	0.4	0.1	6/1/2004	effective ba	1	6.0	1603.6
20	BMpcpH	13.0	1.9	0.4	6/1/2004	effective ba	2	2.3	3122.9
20	BTpcpK	80.0	11.4	2.7	6/1/2004	effective ba	2	-4.2	162.3
21	BUpcpA	110.0	14.7	3.7	6/1/2004	effective ba	1	6.0	335.0
21	BUpcpB	110.0	14.7	3.7	6/1/2004	effective ba	2	4.5	799.0
21	BUpcpC	110.0	14.7	3.7	6/1/2004	effective ba	2	3.0	970.2
21	BUpcpD	110.0	14.7	3.7	6/1/2004	effective ba	2	1.5	1309.4
21	BUpcpE	110.0	14.7	3.7	6/1/2004	effective ba	2	0.9	1076.4
21	BUpcpF	110.0	14.7	3.7	6/1/2004	effective ba	2	0.2	1520.8
21	BUpcpG	110.0	14.7	3.7	6/1/2004	effective ba	2	-0.4	872.9
21	BUpcpH	110.0	14.7	3.7	6/1/2004	effective ba	2	-1.0	350.2
20	BYpcpD	130.0	17.3	4.3	6/1/2004	effective ba	2	1.3	1526.3
20	BYpcpE	130.0	17.3	4.3	6/1/2004	effective ba	2	0.7	1647.0
20	BYpcpF	130.0	17.3	4.3	6/1/2004	effective ba	2	0.0	1655.4
20	BYpcpG	130.0	17.3	4.3	6/1/2004	effective ba	2	-0.6	47.7
20	BYpcpH	130.0	17.3	4.3	6/1/2004	effective ba	2	-1.2	837.9
19	BCa	20.0	2.9	0.7	6/2/2004	effective ba	1	6.0	939.0
19	BCb	20.0	2.9	0.7	6/2/2004	effective ba	2	3.6	1217.0
20	BCc	20.0	2.9	0.7	6/2/2004	effective ba	2	2.0	802.0
21	BD	20.0	2.9	0.7	6/2/2004	effective ba	1	5.6	563.0
10	AI	200.0	28.6	6.7	6/3/2004	b/tw areas (	1	8.1	234.0
9	BCd	40.0	5.7	1.3	6/3/2004	effective ba	2	0.2	1548.0
9	BCe	40.0	5.7	1.3	6/3/2004	effective ba	2	-1.6	928.0
21	BCpcpD	40.0	5.7	1.3	6/3/2004	effective ba	2	2.6	867.0
21	BCpcpE	40.0	5.7	1.3	6/3/2004	effective ba	2	1.0	2448.9
21	BCpcpF	40.0	5.7	1.3	6/3/2004	effective ba	2	0.4	1954.6
21	BCpcpG	40.0	5.7	1.3	6/3/2004	effective ba	2	-0.2	2553.5
20	BMpcpA	1.0	0.1	0.0	6/3/2004	effective ba	1	6.9	1181.6
20	BMpcpG	11.0	1.6	0.4	6/3/2004	effective ba	2	2.9	3376.1
9	BTg	70.0	10.0	2.3	6/3/2004	effective ba	2	-0.1	422.0
21	BTh	70.0	10.0	2.3	6/3/2004	effective ba	2	-1.0	565.0
20	BTpcpD	70.0	10.0	2.3	6/3/2004	effective ba	2	1.9	1357.9
20	BTpcpE	70.0	10.0	2.3	6/3/2004	effective ba	2	1.3	1594.4
20	BTpcpF	70.0	10.0	2.3	6/3/2004	effective ba	2	0.7	670.5
20	BTpcpG	70.0	10.0	2.3	6/3/2004	effective ba	2	0.1	484.3
20	BTpcpH	70.0	10.0	2.3	6/3/2004	effective ba	2	-0.5	658.6
20	BTpcpI	70.0	10.0	2.3	6/3/2004	effective ba	2	-1.1	858.7
7	AA	160.0	22.9	5.3	6/4/2004	rest area	1	8.4	NM
20	BMpcpJ	18.0	2.6	0.6	6/4/2004	effective ba	2	0.8	362.9
20	BTpcpC	60.0	8.6	2.0	6/4/2004	effective ba	2	3.5	714.0
20	CA	160.0	22.9	5.3	6/4/2004	rest area, n	1	6.1	327.0
20	BCh	17.0	2.4	0.6	6/5/2004	effective ba	1	5.0	883.0
20	BMe	17.0	2.4	0.6	6/5/2004	effective ba	2	1.5	220.0
20	BMpcpF	9.0	1.3	0.3	6/5/2004	effective ba	2	3.6	2658.7
22	BTf	68.0	9.7	2.3	6/5/2004	effective ba	2	0.7	641.0
20	BMpcpE	8.0	1.1	0.3	6/6/2004	effective ba	2	4.2	5908.1
20	BTpcpJ	75.0	10.7	2.5	6/6/2004	effective ba	2	-2.6	214.3
20	BCf	15.0	2.1	0.5	6/7/2004	effective ba	1	6.8	1075.0
21	BCpcpC	30	4	1	6/7/2004	effective ba	2	4.1	916.3
20	BMpcpI	15.0	2.1	0.5	6/7/2004	effective ba	2	1.7	2194.4
8	AB	35.0	5.0	1.2	6/8/2004	west of rest	1	8.0	316.0
20	ATpcpC	6.0	0.9	0.2	6/8/2004	effective ba	2	4.7	570.9
21	BCpcpH	50.0	7.1	1.7	6/8/2004	effective ba	2	-0.8	270.4
21	BCpcpI	50.0	7.1	1.7	6/8/2004	effective ba	2	-1.4	225.7
21	BCpcpJ	50.0	7.1	1.7	6/8/2004	effective ba	2	-2.0	209.9
20	BE	35.0	5.0	1.2	6/8/2004	effective ba	2	-0.5	175.0
20	BMpcpD	6.0	0.9	0.2	6/8/2004	effective ba	2	4.8	5064.1
21	BTa	65.0	9.3	2.2	6/8/2004	effective ba	1	5.4	555.0
21	BTb	65.0	9.3	2.2	6/8/2004	effective ba	2	4.4	423.0
21	BTc	65.0	9.3	2.2	6/8/2004	effective ba	2	3.6	286.0
22	BTd	65.0	9.3	2.2	6/8/2004	effective ba	2	2.7	220.0
22	BTe	65.0	9.3	2.2	6/8/2004	effective ba	2	1.7	236.0
20	BTpcpA	50.0	7.1	1.7	6/8/2004	effective ba	1	6.5	1033.7
20	BTpcpB	50.0	7.1	1.7	6/8/2004	effective ba	2	5.0	982.3
20	BYpcpI	140.0	18.7	4.7	6/8/2004	effective ba	2	-1.8	843.6
20	ATpcpB	5.0	0.7	0.2	6/9/2004	effective ba	1	5.3	7182.0
21	BCpcpD	40.0	5.7	1.3	6/9/2004	effective ba	2	2.6	813.1
21	BCpcpE	40.0	5.7	1.3	6/9/2004	effective ba	2	1.0	2439.3
21	BCpcpF	40.0	5.7	1.3	6/9/2004	effective ba	2	0.4	1523.5

Row	Well	Travel time days	wks	mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm
14	AF	120.0	17.1	4.0	7/14/2003	area 12 (south shoulder of EB lane)	1	7.3	100.0
20	ATpcpC	6.0	0.9	0.2	7/14/2003	effective basin	2	4.7	441.0
21	BCpcpH	50.0	7.1	1.7	7/14/2003	effective basin	2	-0.8	308.2
21	BCpcpI	50.0	7.1	1.7	7/14/2003	effective basin	2	-1.4	108.2
21	BCpcpJ	50.0	7.1	1.7	7/14/2003	effective basin	2	-2.0	102.3
20	BMpcpD	6.0	0.9	0.2	7/14/2003	effective basin	2	4.8	3051.0
20	BMpcpI	15.0	2.1	0.5	7/14/2003	effective basin	2	1.7	519.0
20	BTpcpA	50.0	7.1	1.7	7/14/2003	effective basin	1	6.5	327.1
20	BTpcpB	50.0	7.1	1.7	7/14/2003	effective basin	2	5.0	582.2
21	BUpcpI	120.0	16.0	4.0	7/14/2003	effective basin	2	-1.6	260.8
20	BYpcpA	120.0	17.1	4.0	7/14/2003	effective basin	1	5.8	833.4
20	BYpcpB	120.0	16.0	4.0	7/14/2003	effective basin	2	4.3	541.3
20	BYpcpC	120.0	16.0	4.0	7/14/2003	effective basin	2	2.8	489.5
21	BZ	120.0	17.1	4.0	7/14/2003	effective basin	1	6.7	626.0
20	ATpcpB	5.0	0.7	0.2	7/15/2003	effective basin	1	5.3	5663.0
21	BCj	42	6	1	7/15/2003	effective basin	2	-0.2	108.0
20	BMpcpA	1.0	0.1	0.0	7/15/2003	effective basin	1	6.9	842.8
20	BMpcpC	5.0	0.7	0.2	7/15/2003	effective basin	1	5.4	3186.0
21	BTa	65.0	9.3	2.2	7/15/2003	effective basin	1	5.4	871.0
21	BTb	65.0	9.3	2.2	7/15/2003	effective basin	2	4.4	234.0
21	BTc	65.0	9.3	2.2	7/15/2003	effective basin	2	3.6	205.0
21	BTd	65.0	9.3	2.2	7/15/2003	effective basin	2	2.7	206.0
20	BTe	65.0	9.3	2.2	7/15/2003	effective basin	2	1.7	187.0
20	BMpcpH	13	2	0	7/16/2003	effective basin	2	2.3	1107.0
20	ATpcpA	3.0	0.4	0.1	7/17/2003	effective basin	1	6.8	988.1
20	BCd	40	6	1	7/17/2003	effective basin	2	0.2	194.0
20	BCe	40	6	1	7/17/2003	effective basin	2	-1.6	135.0
21	BCpcpD	40.0	5.7	1.3	7/17/2003	effective basin	2	2.6	1140.8
21	BCpcpE	40.0	5.7	1.3	7/17/2003	effective basin	2	1.0	259.5
21	BCpcpF	40.0	5.7	1.3	7/17/2003	effective basin	2	0.4	245.3
21	BCpcpG	40.0	5.7	1.3	7/17/2003	effective basin	2	-0.2	245.9
20	BMpcpB	3.0	0.4	0.1	7/17/2003	effective basin	1	6.0	1799.0
20	BYpcpI	140.0	18.7	4.7	7/17/2003	effective basin	2	-1.8	237.7
20	BMpcpG	11.0	1.6	0.4	7/18/2003	effective basin	2	2.9	480.0
20	BMpcpA	1.0	0.1	0.0	7/19/2003	effective basin	1	6.9	1077.9
20	BMpcpF	9.0	1.3	0.3	7/20/2003	effective basin	2	3.6	817.0
20	BTpcpC	60.0	8.6	2.0	7/20/2003	effective basin	2	3.5	1150.0
9	AD	150	21	5	7/21/2003	b/tw areas 6/16, N of ramp, S of shoulder	1	8.1	NM
20	BMpcpE	8.0	1.1	0.3	7/21/2003	effective basin	2	4.2	2030.0
20	BYpcpJ	150.0	20.0	5.0	7/21/2003	effective basin	2	-3.3	149.3
8	AB	35	5	1	7/22/2003	west of rest area, runoff slope	1	8.0	450.0
21	BE	35	5	1	7/22/2003	effective basin	2	-0.5	213.0
20	ATpcpC	6	1	0	7/23/2003	effective basin	2	4.7	683.0
20	BMpcpD	6.0	0.9	0.2	7/23/2003	effective basin	2	4.8	2358.0
20	ATpcpB	5	1	0	7/24/2003	effective basin	1	5.3	2784.0
21	BCpcpD	40.0	5.7	1.3	7/24/2003	effective basin	2	2.6	389.2
21	BCpcpE	40.0	5.7	1.3	7/24/2003	effective basin	2	1.0	270.2
21	BCpcpF	40.0	5.7	1.3	7/24/2003	effective basin	2	0.4	232.4
21	BCpcpG	40.0	5.7	1.3	7/24/2003	effective basin	2	-0.2	429.2
20	BMpcpC	5.0	0.7	0.2	7/24/2003	effective basin	1	5.4	2963.0
21	BUpcpA	110.0	14.7	3.7	7/24/2003	effective basin	1	6.0	611.2
21	BUpcpB	110.0	14.7	3.7	7/24/2003	effective basin	2	4.5	703.7
21	BUpcpC	110.0	14.7	3.7	7/24/2003	effective basin	2	3.0	842.9
21	BUpcpD	110.0	14.7	3.7	7/24/2003	effective basin	2	1.5	356.0
21	BUpcpE	110.0	14.7	3.7	7/24/2003	effective basin	2	0.9	335.8
21	BUpcpF	110.0	14.7	3.7	7/24/2003	effective basin	2	0.2	344.1
21	BUpcpG	110.0	14.7	3.7	7/24/2003	effective basin	2	-0.4	175.4
21	BUpcpH	110.0	14.7	3.7	7/24/2003	effective basin	2	-1.0	144.5
20	ATpcpA	3.0	0.4	0.1	7/26/2003	effective basin	1	6.8	713.9
20	BMpcpB	3.0	0.4	0.1	7/26/2003	effective basin	1	6.0	1619.0
18	AP	30	4	1	7/27/2003	effective basin	1	8.0	345.0
20	BCi	30	4	1	7/27/2003	effective basin	2	1.1	183.0
21	BCpcpC	30.0	4.3	1.0	7/27/2003	effective basin	2	4.1	465.9
22	BG	30	4	1	7/27/2003	N of WB lane, near 4 UG wells across rd	1	7.6	595.0
22	BIpcpA	420.0	56.0	14.0	7/27/2003	by back fence area, runoff b/tw BK/BS	1	6.0	2177.4
20	BYpcpD	130.0	17.3	4.3	7/27/2003	effective basin	2	1.3	241.2
20	BYpcpE	130.0	17.3	4.3	7/27/2003	effective basin	2	0.7	238.5
20	BYpcpF	130.0	17.3	4.3	7/27/2003	effective basin	2	0.0	235.2
20	BYpcpG	130.0	17.3	4.3	7/27/2003	effective basin	2	-0.6	23.4
20	BYpcpH	130.0	17.3	4.3	7/27/2003	effective basin	2	-1.2	237.1

Row	Well	Travel time days	wks	mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm
21	BCpcpG	40.0	5.7	1.3	6/9/2004	effective ba	2	-0.2	2243.9
20	BMpcpC	5.0	0.7	0.2	6/9/2004	effective ba	1	5.4	5908.1
20	BMpcpH	13.0	1.9	0.4	6/9/2004	effective ba	2	2.3	1814.6
20	BYpcpJ	150.0	20.0	5.0	6/9/2004	effective ba	2	-3.3	906.4
12	AI	11.0	1.6	0.4	6/11/2004	crest of bas	1	8.0	639.0
20	ATpcpA	3.0	0.4	0.1	6/11/2004	effective ba	1	6.8	1926.4
20	BMc	11.0	1.6	0.4	6/11/2004	effective ba	2	3.0	162.0
20	BMpcpB	3.0	0.4	0.1	6/11/2004	effective ba	1	6.0	2321.1
20	BMpcpG	11.0	1.6	0.4	6/11/2004	effective ba	2	2.9	1983.4
20	BTpcpD	70.0	10.0	2.3	6/11/2004	effective ba	2	1.9	1461.1
20	BTpcpE	70.0	10.0	2.3	6/11/2004	effective ba	2	1.3	1688.4
20	BTpcpF	70.0	10.0	2.3	6/11/2004	effective ba	2	0.7	698.6
20	BTpcpG	70.0	10.0	2.3	6/11/2004	effective ba	2	0.1	574.7
20	BTpcpH	70.0	10.0	2.3	6/11/2004	effective ba	2	-0.5	419.7
20	BTpcpI	70.0	10.0	2.3	6/11/2004	effective ba	2	-1.1	941.6
21	BUpcpI	120.0	16.0	4.0	6/11/2004	effective ba	2	-1.6	1141.4
20	BYpcpA	120.0	17.1	4.0	6/11/2004	effective ba	1	5.8	404.1
20	BYpcpB	120.0	16.0	4.0	6/11/2004	effective ba	2	4.3	547.7
20	BYpcpC	120.0	16.0	4.0	6/11/2004	effective ba	2	2.8	1464.9
21	BCpcpA	25	4	1	6/12/2004	effective ba	1	7.1	880.0
21	BCpcpB	25	4	1	6/12/2004	effective ba	1	5.6	1470.0
19	BMd	10.0	1.4	0.3	6/12/2004	effective ba	2	2.1	770.0
20	BMpcpK	25	4	1	6/12/2004	effective ba	2	-0.7	151.9
19	BN	10.0	1.4	0.3	6/12/2004	effective ba	2	1.8	2231.0
9	AC	190.0	27.1	6.3	6/13/2004	b/tw areas (	1	8.2	106.0
18	AP	30.0	4.3	1.0	6/13/2004	effective ba	1	8.0	950.0
22	BCi	30.0	4.3	1.0	6/13/2004	effective ba	2	1.1	653.0
21	BCpcpC	30.0	4.3	1.0	6/13/2004	effective ba	2	4.1	1256.1
20	BG	30.0	4.3	1.0	6/13/2004	effective ba	1	7.6	576.0
20	BMb	9.0	1.3	0.3	6/13/2004	effective ba	2	3.9	1521.0
20	BMpcpA	1.0	0.1	0.0	6/13/2004	effective ba	1	6.9	1772.4
20	BMpcpF	9.0	1.3	0.3	6/13/2004	effective ba	2	3.6	1266.0
20	BTpcpC	60.0	8.6	2.0	6/13/2004	effective ba	2	3.5	825.6
9	AD	150.0	21.4	5.0	6/14/2004	b/tw areas (	1	8.1	NM
21	BCpcpH	50.0	7.1	1.7	6/14/2004	effective ba	2	-0.8	211.7
21	BCpcpI	50.0	7.1	1.7	6/14/2004	effective ba	2	-1.4	233.9
21	BCpcpJ	50.0	7.1	1.7	6/14/2004	effective ba	2	-2.0	208.6
20	BMpcpE	8.0	1.1	0.3	6/14/2004	effective ba	2	4.2	3460.5
20	BTpcpA	50.0	7.1	1.7	6/14/2004	effective ba	1	6.5	975.9
20	BTpcpB	50.0	7.1	1.7	6/14/2004	effective ba	2	5.0	1107.0
20	BYpcpJ	150.0	20.0	5.0	6/14/2004	effective ba	2	-3.3	1120.4
19	BMa	7.0	1.0	0.2	6/15/2004	effective ba	1	4.8	1724.0
20	BTpcpK	80.0	11.4	2.7	6/15/2004	effective ba	2	-4.2	364.0
20	ATpcpC	6.0	0.9	0.2	6/16/2004	effective ba	2	4.7	715.8
20	BMpcpD	6.0	0.9	0.2	6/16/2004	effective ba	2	4.8	5064.1
20	ATpcpB	5.0	0.7	0.2	6/17/2004	effective ba	1	5.3	5455.8
20	BMpcpC	5.0	0.7	0.2	6/17/2004	effective ba	1	5.4	5064.1
12	AG	130.0	18.6	4.3	6/18/2004	area 12 (sou	1	7.3	617.0
18	BCg	25.0	3.6	0.8	6/18/2004	effective ba	2	2.9	112.0
21	BCpcpA	25.0	3.6	0.8	6/18/2004	effective ba	1	7.1	1111.4
21	BCpcpB	25.0	3.6	0.8	6/18/2004	effective ba	1	5.6	1521.0
21	BCpcpD	40.0	5.7	1.3	6/18/2004	effective ba	2	2.6	2484.5
21	BCpcpE	40.0	5.7	1.3	6/18/2004	effective ba	2	1.0	1656.3
21	BCpcpF	40.0	5.7	1.3	6/18/2004	effective ba	2	0.4	1356.0
21	BCpcpG	40.0	5.7	1.3	6/18/2004	effective ba	2	-0.2	924.7
20	BMpcpK	25.0	3.6	0.8	6/18/2004	effective ba	2	-0.7	168.8
20	BYpcpD	130.0	17.3	4.3	6/18/2004	effective ba	2	1.3	1182.5
20	BYpcpE	130.0	17.3	4.3	6/18/2004	effective ba	2	0.7	1359.6
20	BYpcpF	130.0	17.3	4.3	6/18/2004	effective ba	2	0.0	1522.7
20	BYpcpG	130.0	17.3	4.3	6/18/2004	effective ba	2	-0.6	111.1
20	BYpcpH	130.0	17.3	4.3	6/18/2004	effective ba	2	-1.2	1113.9
20	ATpcpA	3.0	0.4	0.1	6/19/2004	effective ba	1	6.8	1792.4
21	BCpcpC	30.0	4.3	1.0	6/19/2004	effective ba	2	4.1	1397.0
20	BMpcpB	3.0	0.4	0.1	6/19/2004	effective ba	1	6.0	2363.3
20	BMpcpJ	18	3	1	6/19/2004	effective ba	2	0.8	244.8
20	BYpcpI	140.0	18.7	4.7	6/19/2004	effective ba	2	-1.8	774.3
20	AT	2.0	0.3	0.1	6/20/2004	effective ba	1	7.3	1254.0
20	BTpcpJ	75.0	10.7	2.5	6/20/2004	effective ba	2	-2.6	336.3
20	BMpcpA	1.0	0.1	0.0	6/21/2004	effective ba	1	6.9	2447.7
20	BTpcpC	60.0	8.6	2.0	6/21/2004	effective ba	2	3.5	904.0

Row	Well	Travel time days	wks	mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm
24	AR	300.0	42.9	10.0	8/27/2003	N of WB lane, N of median 8	1	8.1	902.0
21	BCpcpH	50.0	7.1	1.7	8/27/2003	effective basin	2	-0.8	165.1
21	BCpcpI	50.0	7.1	1.7	8/27/2003	effective basin	2	-1.4	122.9
21	BCpcpJ	50.0	7.1	1.7	8/27/2003	effective basin	2	-2.0	138.1
20	BMpcpD	6.0	0.9	0.2	8/27/2003	effective basin	2	4.8	2067.8
20	BTpcpA	50.0	7.1	1.7	8/27/2003	effective basin	1	6.5	385.2
20	BTpcpB	50.0	7.1	1.7	8/27/2003	effective basin	2	5.0	545.1
20	BMpcpC	5.0	0.7	0.2	8/28/2003	effective basin	1	5.4	2743.1
20	BTpcpJ	75.0	10.7	2.5	8/28/2003	effective basin	2	-2.6	177.3
19	BCa	20.0	2.9	0.7	8/29/2003	effective basin	1	6.0	674.0
19	BCb	20.0	2.9	0.7	8/29/2003	effective basin	2	3.6	702.0
20	BCc	20.0	2.9	0.7	8/29/2003	effective basin	2	2.0	128.0
21	BD	20.0	2.9	0.7	8/29/2003	effective basin	1	5.6	410.0
20	BYpcpD	130.0	17.3	4.3	8/29/2003	effective basin	2	1.3	209.1
20	BYpcpE	130.0	17.3	4.3	8/29/2003	effective basin	2	0.7	181.3
20	BYpcpF	130.0	17.3	4.3	8/29/2003	effective basin	2	0.0	221.2
20	BYpcpG	130.0	17.3	4.3	8/29/2003	effective basin	2	-0.6	11.7
20	BYpcpH	130.0	17.3	4.3	8/29/2003	effective basin	2	-1.2	224.6
20	BMpcpB	3.0	0.4	0.1	8/30/2003	effective basin	1	6.0	1519.2
21	BUpcpA	110.0	14.7	3.7	8/30/2003	effective basin	1	6.0	837.1
21	BUpcpB	110.0	14.7	3.7	8/30/2003	effective basin	2	4.5	722.3
21	BUpcpC	110.0	14.7	3.7	8/30/2003	effective basin	2	3.0	448.8
21	BUpcpD	110.0	14.7	3.7	8/30/2003	effective basin	2	1.5	282.6
21	BUpcpE	110.0	14.7	3.7	8/30/2003	effective basin	2	0.9	198.8
21	BUpcpF	110.0	14.7	3.7	8/30/2003	effective basin	2	0.2	287.5
21	BUpcpG	110.0	14.7	3.7	8/30/2003	effective basin	2	-0.4	172.9
21	BUpcpH	110.0	14.7	3.7	8/30/2003	effective basin	2	-1.0	175.1
20	BMpcpJ	18.0	2.6	0.6	8/31/2003	effective basin	2	0.8	337.6
20	BTpcpC	60.0	8.6	2.0	8/31/2003	effective basin	2	3.5	802.5
20	BCh	17.0	2.4	0.6	9/1/2003	effective basin	1	5.0	622.0
20	BMe	17.0	2.4	0.6	9/1/2003	effective basin	2	1.5	94.0
20	BMpcpA	1.0	0.1	0.0	9/1/2003	effective basin	1	6.9	928.4
14	AN	210.0	30.0	7.0	9/2/2003	area 12 (south shoulder of EB lane)	1	8.0	143.0
22	BIpcpA	420.0	56.0	14.0	9/2/2003	by back fence area, runoff b/tw BK/BS	1	6.0	858.2
20	BTg	70.0	10.0	2.3	9/2/2003	effective basin	2	-0.1	347.0
20	BTh	70.0	10.0	2.3	9/2/2003	effective basin	2	-1.0	207.0
20	BTpcpD	70.0	10.0	2.3	9/2/2003	effective basin	2	1.9	547.7
20	BTpcpE	70.0	10.0	2.3	9/2/2003	effective basin	2	1.3	419.7
20	BTpcpF	70.0	10.0	2.3	9/2/2003	effective basin	2	0.7	315.5
20	BTpcpG	70.0	10.0	2.3	9/2/2003	effective basin	2	0.1	402.5
20	BTpcpH	70.0	10.0	2.3	9/2/2003	effective basin	2	-0.5	442.3
20	BTpcpI	70.0	10.0	2.3	9/2/2003	effective basin	2	-1.1	281.5
20	BCf	15.0	2.1	0.5	9/3/2003	effective basin	1	6.8	580.0
20	BMpcpI	15.0	2.1	0.5	9/3/2003	effective basin	2	1.7	1097.2
20	BTf	68.0	9.7	2.3	9/4/2003	effective basin	2	0.7	190.0
20	BYpcpJ	150.0	20.0	5.0	9/4/2003	effective basin	2	-3.3	198.6
20	BMpcpH	13.0	1.9	0.4	9/5/2003	effective basin	2	2.3	1941.2
20	BYpcpI	140.0	18.7	4.7	9/5/2003	effective basin	2	-1.8	175.7
21	BCpcpD	40.0	5.7	1.3	9/6/2003	effective basin	2	2.6	442.4
21	BCpcpE	40.0	5.7	1.3	9/6/2003	effective basin	2	1.0	392.7
21	BCpcpF	40.0	5.7	1.3	9/6/2003	effective basin	2	0.4	283.3
21	BCpcpG	40.0	5.7	1.3	9/6/2003	effective basin	2	-0.2	457.7
12	AJ	11.0	1.6	0.4	9/7/2003	crest of basin, comes down slope	1	8.0	265.0
20	BMc	11.0	1.6	0.4	9/7/2003	effective basin	2	3.0	538.0
20	BMpcpG	11.0	1.6	0.4	9/7/2003	effective basin	2	2.9	1434.8
21	BTa	65.0	9.3	2.2	9/7/2003	effective basin	1	5.4	840.0
21	BTb	65.0	9.3	2.2	9/7/2003	effective basin	2	4.4	634.0
21	BTc	65.0	9.3	2.2	9/7/2003	effective basin	2	3.6	436.0
21	BTd	65.0	9.3	2.2	9/7/2003	effective basin	2	2.7	391.0
20	BTe	65.0	9.3	2.2	9/7/2003	effective basin	2	1.7	299.0
19	BMd	10.0	1.4	0.3	9/8/2003	effective basin	2	2.1	364.0
19	BN	10.0	1.4	0.3	9/8/2003	effective basin	2	1.8	193.0
21	BUpcpI	120.0	16.0	4.0	9/8/2003	effective basin	2	-1.6	160.9
20	BYpcpA	120.0	17.1	4.0	9/8/2003	effective basin	1	5.8	292.1
20	BYpcpB	120.0	16.0	4.0	9/8/2003	effective basin	2	4.3	202.3
20	BYpcpC	120.0	16.0	4.0	9/8/2003	effective basin	2	2.8	196.8
20	BMb	9.0	1.3	0.3	9/9/2003	effective basin	2	3.9	369.0
20	BMpcpF	9.0	1.3	0.3	9/9/2003	effective basin	2	3.6	1266.0
15	AO	50.0	7.1	1.7	9/10/2003	near BO cluster, not "effective" area	1	8.2	225.0

Row	Well	Travel time days	wks	mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm
20	BTpcpG	70.0	10.0	2.3	7/11/2004	effective ba	2	0.1	1565.1
20	BTpcpH	70.0	10.0	2.3	7/11/2004	effective ba	2	-0.5	1196.6
20	BTpcpI	70.0	10.0	2.3	7/11/2004	effective ba	2	-1.1	987.3
20	BMpcpA	1.0	0.1	0.0	7/12/2004	effective ba	1	6.9	2110.0
18	AP	30.0	4.3	1.0	7/13/2004	effective ba	1	8.0	609.0
20	ATpcpC	6.0	0.9	0.2	7/13/2004	effective ba	2	4.7	349.2
22	BCi	30.0	4.3	1.0	7/13/2004	effective ba	2	1.1	353.0
21	BCpcpC	30.0	4.3	1.0	7/13/2004	effective ba	2	4.1	1155.9
20	BG	30.0	4.3	1.0	7/13/2004	N of WB la	1	7.6	525.0
20	BMpcpD	6.0	0.9	0.2	7/13/2004	effective ba	2	4.8	1688.0
20	BMpcpI	15.0	2.1	0.5	7/13/2004	effective ba	2	1.7	1266.0
20	CA	160.0	22.9	5.3	7/13/2004	rest area, re	1	6.1	315.0
14	AF	120.0	17.1	4.0	7/14/2004	area 12 (so	1	7.3	130.0
20	ATpcpB	5.0	0.7	0.2	7/14/2004	effective ba	1	5.3	2856.6
20	BMpcpC	5.0	0.7	0.2	7/14/2004	effective ba	1	5.4	1941.2
21	BUpcpI	120.0	16.0	4.0	7/14/2004	effective ba	2	-1.6	339.1
20	BYpcpA	120.0	17.1	4.0	7/14/2004	effective ba	1	5.8	390.8
20	BYpcpB	120.0	16.0	4.0	7/14/2004	effective ba	2	4.3	561.8
20	BYpcpC	120.0	16.0	4.0	7/14/2004	effective ba	2	2.8	1014.2
20	BYpcpD	130.0	17.3	4.3	7/14/2004	effective ba	2	1.3	592.6
20	BYpcpE	130.0	17.3	4.3	7/14/2004	effective ba	2	0.7	599.6
20	BYpcpF	130.0	17.3	4.3	7/14/2004	effective ba	2	0.0	900.6
20	BYpcpG	130.0	17.3	4.3	7/14/2004	effective ba	2	-0.6	32.3
20	BYpcpH	130.0	17.3	4.3	7/14/2004	effective ba	2	-1.2	860.3
20	BYpcpJ	150.0	20.0	5.0	7/14/2004	effective ba	2	-3.3	392.7
20	BZ	120.0	17.1	4.0	7/14/2004	effective ba	1	6.7	297.0
21	BCpcpH	50.0	7.1	1.7	7/15/2004	effective ba	2	-0.8	937.2
21	BCpcpI	50.0	7.1	1.7	7/15/2004	effective ba	2	-1.4	196.7
21	BCpcpJ	50.0	7.1	1.7	7/15/2004	effective ba	2	-2.0	180.4
20	BMpcpH	13.0	1.9	0.4	7/15/2004	effective ba	2	2.3	1266.0
9	BTg	70.0	10.0	2.3	7/15/2004	effective ba	2	-0.1	1082.0
21	BTh	70.0	10.0	2.3	7/15/2004	effective ba	2	-1.0	408.0
20	BTpcpA	50.0	7.1	1.7	7/15/2004	effective ba	1	6.5	743.8
20	BTpcpB	50.0	7.1	1.7	7/15/2004	effective ba	2	5.0	685.1
20	ATpcpA	3.0	0.4	0.1	7/16/2004	effective ba	1	6.8	1050.7
20	BMpcpB	3.0	0.4	0.1	7/16/2004	effective ba	1	6.0	1603.6
20	BMpcpJ	18.0	2.6	0.6	7/16/2004	effective ba	2	0.8	212.0
20	BMpcpG	11.0	1.6	0.4	7/17/2004	effective ba	2	2.9	590.8
22	BTf	68.0	9.7	2.3	7/17/2004	effective ba	2	0.7	844.0
18	BCg	25.0	3.6	0.8	7/18/2004	effective ba	2	2.9	549.0
21	BCpcpA	25.0	3.6	0.8	7/18/2004	effective ba	1	7.1	1173.3
21	BCpcpB	25.0	3.6	0.8	7/18/2004	effective ba	1	5.6	1079.6
20	BMpcpA	1.0	0.1	0.0	7/18/2004	effective ba	1	6.9	1350.4
20	BMpcpK	25.0	3.6	0.8	7/18/2004	effective ba	2	-0.7	149.0
20	BMpcpF	9.0	1.3	0.3	7/19/2004	effective ba	2	3.6	590.8
20	BMpcpI	15.0	2.1	0.5	7/19/2004	effective ba	2	1.7	1118.7
21	BUpcpA	110.0	14.7	3.7	7/19/2004	effective ba	1	6.0	451.5
21	BUpcpB	110.0	14.7	3.7	7/19/2004	effective ba	2	4.5	806.3
21	BUpcpC	110.0	14.7	3.7	7/19/2004	effective ba	2	3.0	481.5
21	BUpcpD	110.0	14.7	3.7	7/19/2004	effective ba	2	1.5	806.3
21	BUpcpE	110.0	14.7	3.7	7/19/2004	effective ba	2	0.9	954.0
21	BUpcpF	110.0	14.7	3.7	7/19/2004	effective ba	2	0.2	877.4
21	BUpcpG	110.0	14.7	3.7	7/19/2004	effective ba	2	-0.4	861.6
21	BUpcpH	110.0	14.7	3.7	7/19/2004	effective ba	2	-1.0	346.7
20	BMpcpE	8.0	1.1	0.3	7/20/2004	effective ba	2	4.2	928.4
21	BTa	65.0	9.3	2.2	7/20/2004	effective ba	1	5.4	684.0
21	BTb	65.0	9.3	2.2	7/20/2004	effective ba	2	4.4	679.0
21	BTc	65.0	9.3	2.2	7/20/2004	effective ba	2	3.6	678.0
22	BTd	65.0	9.3	2.2	7/20/2004	effective ba	2	2.7	63.2
22	BTe	65.0	9.3	2.2	7/20/2004	effective ba	2	1.7	532.0
21	BCpcpC	30.0	4.3	1.0	7/21/2004	effective ba	2	4.1	1259.2
20	BMpcpH	13.0	1.9	0.4	7/21/2004	effective ba	2	2.3	336.0
20	BTpcpC	60.0	8.6	2.0	7/21/2004	effective ba	2	3.5	799.0
20	BTpcpK	80.0	11.4	2.7	7/21/2004	effective ba	2	-4.2	211.4
20	ATpcpC	6.0	0.9	0.2	7/22/2004	effective ba	2	4.7	478.8
20	BMpcpD	6.0	0.9	0.2	7/22/2004	effective ba	2	4.8	1772.4
9	AD	150.0	21.4	5.0	7/23/2004	b/tw areas (	1	8.1	353.0
20	ATpcpB	5.0	0.7	0.2	7/23/2004	effective ba	1	5.3	2783.3
21	BCa	20.0	2.9	0.7	7/23/2004	effective ba	1	6.0	702.0
9	BCb	20.0	2.9	0.7	7/23/2004	effective ba	2	3.6	437.0

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Row	Well	Travel time days	wks	mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm
21	BCpcpH	50.0	7.1	1.7	9/10/2003	effective basin	2	-0.8	196.5
21	BCpcpI	50.0	7.1	1.7	9/10/2003	effective basin	2	-1.4	122.9
21	BCpcpJ	50.0	7.1	1.7	9/10/2003	effective basin	2	-2.0	135.4
20	BMpcpE	8.0	1.1	0.3	9/10/2003	effective basin	2	4.2	2447.7
20	BTk	50.0	7.1	1.7	9/10/2003	effective basin	1	7.3	491.0
20	BTpcpA	50.0	7.1	1.7	9/10/2003	effective basin	1	6.5	554.3
20	BTpcpB	50.0	7.1	1.7	9/10/2003	effective basin	2	5.0	537.5
19	BMa	7.0	1.0	0.2	9/11/2003	effective basin	1	4.8	603.0
20	BYpcpJ	150.0	20.0	5.0	9/11/2003	effective basin	2	-3.3	172.6
12	AG	130.0	18.6	4.3	9/12/2003	area 12 (south shoulder of EB lane)	1	7.3	1260.0
10	AI	200.0	28.6	6.7	9/12/2003	b/tw areas 6/16, N of ramp, S of shoulder	1	8.1	367.0
20	ATpcpC	6.0	0.9	0.2	9/12/2003	effective basin	2	4.7	517.5
20	BMpcpD	6.0	0.9	0.2	9/12/2003	effective basin	2	4.8	2152.2
20	BTpcpC	60.0	8.6	2.0	9/12/2003	effective basin	2	3.5	652.6
20	ATpcpB	5.0	0.7	0.2	9/13/2003	effective basin	1	5.3	3100.6
22	BIpcpA	420.0	56.0	14.0	9/13/2003	by back fence area, runoff b/tw BK/BS	1	6.0	1504.9
20	BMpcpC	5.0	0.7	0.2	9/13/2003	effective basin	1	5.4	1941.2
20	BYpcpI	140.0	18.7	4.7	9/14/2003	effective basin	2	-1.8	172.8
20	ATpcpA	3.0	0.4	0.1	9/15/2003	effective basin	1	6.8	815.8
20	BMpcpB	3.0	0.4	0.1	9/15/2003	effective basin	1	6.0	633.0
20	BTpcpK	80.0	11.4	2.7	9/15/2003	effective basin	2	-4.2	123.0
20	BYpcpD	130.0	17.3	4.3	9/15/2003	effective basin	2	1.3	251.0
20	BYpcpE	130.0	17.3	4.3	9/15/2003	effective basin	2	0.7	215.4
20	BYpcpF	130.0	17.3	4.3	9/15/2003	effective basin	2	0.0	250.1
20	BYpcpG	130.0	17.3	4.3	9/15/2003	effective basin	2	-0.6	15.1
20	BYpcpH	130.0	17.3	4.3	9/15/2003	effective basin	2	-1.2	215.0
20	AT	2.0	0.3	0.1	9/16/2003	effective basin	1	7.3	524.0
21	BCpcpC	30.0	4.3	1.0	9/16/2003	effective basin	2	4.1	1087.7
7	AA	160.0	22.9	5.3	9/17/2003	rest area	1	8.4	NS
22	AQ	330.0	47.1	11.0	9/17/2003	N of WB lane, near 4 UG wells across rd	1	8.2	380.0
24	AR	300.0	42.9	10.0	9/17/2003	N of WB lane, N of median 8	1	8.1	983.0
20	BMpcpA	1.0	0.1	0.0	9/17/2003	effective basin	1	6.9	1012.8
8	CA	160.0	22.9	5.3	9/17/2003	rest area, near E BC	1	6.1	412.0
21	BCj	42.0	6.0	1.4	9/18/2003	effective basin	2	-0.2	131.0
22	BIpcpA	420.0	56.0	14.0	9/18/2003	by back fence area, runoff b/tw BK/BS	1	6.0	1228.3
21	BUpcpA	110.0	14.7	3.7	9/18/2003	effective basin	1	6.0	714.6
21	BUpcpB	110.0	14.7	3.7	9/18/2003	effective basin	2	4.5	722.3
21	BUpcpC	110.0	14.7	3.7	9/18/2003	effective basin	2	3.0	393.7
21	BUpcpD	110.0	14.7	3.7	9/18/2003	effective basin	2	1.5	395.6
21	BUpcpE	110.0	14.7	3.7	9/18/2003	effective basin	2	0.9	232.3
21	BUpcpF	110.0	14.7	3.7	9/18/2003	effective basin	2	0.2	180.5
21	BUpcpG	110.0	14.7	3.7	9/18/2003	effective basin	2	-0.4	158.4
21	BUpcpH	110.0	14.7	3.7	9/18/2003	effective basin	2	-1.0	136.0
13	AH	90	13	3	9/19/2003	area 12 (south shoulder of EB lane)	1	7.4	2425.0
20	BTj	90	13	3	9/19/2003	effective basin	2	-3.7	151.0
20	BYpcpJ	150.0	20.0	5.0	9/19/2003	effective basin	2	-3.3	173.8
20	BCd	40.0	5.7	1.3	9/20/2003	effective basin	2	0.2	346.0
20	BCe	40.0	5.7	1.3	9/20/2003	effective basin	2	-1.6	198.0
21	BCpcpD	40.0	5.7	1.3	9/20/2003	effective basin	2	2.6	626.9
21	BCpcpE	40.0	5.7	1.3	9/20/2003	effective basin	2	1.0	608.2
21	BCpcpF	40.0	5.7	1.3	9/20/2003	effective basin	2	0.4	562.4
21	BCpcpG	40.0	5.7	1.3	9/20/2003	effective basin	2	-0.2	572.1
20	BTpcpJ	75.0	10.7	2.5	9/20/2003	effective basin	2	-2.6	244.6
21	BCpcpA	25.0	3.6	0.8	9/21/2003	effective basin	1	7.1	798.0
21	BCpcpB	25.0	3.6	0.8	9/21/2003	effective basin	1	5.6	1253.8
20	BMpcpK	25.0	3.6	0.8	9/21/2003	effective basin	2	-0.7	253.2
20	BYpcpI	140.0	18.7	4.7	9/21/2003	effective basin	2	-1.8	158.8
9	AC	190.0	27.1	6.3	9/22/2003	b/tw areas 6/16, N of ramp, S of shoulder	1	8.2	247.0
14	AF	120.0	17.1	4.0	9/22/2003	area 12 (south shoulder of EB lane)	1	7.3	269.0
15	AO	50.0	7.1	1.7	9/22/2003	near BO cluster, not "effective" area	1	8.2	195.0
21	BCpcpH	50.0	7.1	1.7	9/22/2003	effective basin	2	-0.8	174.0
21	BCpcpI	50.0	7.1	1.7	9/22/2003	effective basin	2	-1.4	142.2
21	BCpcpJ	50.0	7.1	1.7	9/22/2003	effective basin	2	-2.0	122.3
20	BTk	50.0	7.1	1.7	9/22/2003	effective basin	1	7.3	841.0
20	BTpcpA	50.0	7.1	1.7	9/22/2003	effective basin	1	6.5	416.7
20	BTpcpB	50.0	7.1	1.7	9/22/2003	effective basin	2	5.0	568.3
21	BZ	120.0	17.1	4.0	9/22/2003	effective basin	1	6.7	204.0
14	AN	210.0	30.0	7.0	9/23/2003	area 12 (south shoulder of EB lane)	1	8.0	164.0
20	BYpcpD	130.0	17.3	4.3	9/24/2003	effective basin	2	1.3	224.7
20	BYpcpE	130.0	17.3	4.3	9/24/2003	effective basin	2	0.7	198.0

Row	Well	Travel time days	wks	mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm
18	BCc	20.0	2.9	0.7	7/23/2004	effective ba	2	2.0	256.0
19	BD	20.0	2.9	0.7	7/23/2004	effective ba	1	5.6	658.0
20	BMpcpC	5.0	0.7	0.2	7/23/2004	effective ba	1	5.4	1434.8
20	BMpcpG	11.0	1.6	0.4	7/23/2004	effective ba	2	2.9	494.0
20	BYpcpJ	150.0	20.0	5.0	7/23/2004	effective ba	2	-3.3	302.6
21	BUpcpA	110.0	14.7	3.7	7/24/2004	effective ba	1	6.0	362.9
21	BUpcpB	110.0	14.7	3.7	7/24/2004	effective ba	2	4.5	454.8
21	BUpcpC	110.0	14.7	3.7	7/24/2004	effective ba	2	3.0	480.4
21	BUpcpD	110.0	14.7	3.7	7/24/2004	effective ba	2	1.5	1087.7
21	BUpcpE	110.0	14.7	3.7	7/24/2004	effective ba	2	0.9	487.2
21	BUpcpF	110.0	14.7	3.7	7/24/2004	effective ba	2	0.2	466.7
21	BUpcpG	110.0	14.7	3.7	7/24/2004	effective ba	2	-0.4	386.1
21	BUpcpH	110.0	14.7	3.7	7/24/2004	effective ba	2	-1.0	501.3
21	BUpcpI	120.0	16.0	4.0	7/24/2004	effective ba	2	-1.6	266.9
20	BYpcpA	120.0	17.1	4.0	7/24/2004	effective ba	1	5.8	400.5
20	BYpcpB	120.0	16.0	4.0	7/24/2004	effective ba	2	4.3	528.0
20	BYpcpC	120.0	16.0	4.0	7/24/2004	effective ba	2	2.8	430.0
20	BYpcpI	140.0	18.7	4.7	7/24/2004	effective ba	2	-1.8	512.4
20	ATpcpA	3.0	0.4	0.1	7/25/2004	effective ba	1	6.8	845.7
21	BCpcpD	40.0	5.7	1.3	7/25/2004	effective ba	2	2.6	882.0
21	BCpcpE	40.0	5.7	1.3	7/25/2004	effective ba	2	1.0	912.5
21	BCpcpF	40.0	5.7	1.3	7/25/2004	effective ba	2	0.4	1121.6
21	BCpcpG	40.0	5.7	1.3	7/25/2004	effective ba	2	-0.2	1561.9
20	BMpcpB	3.0	0.4	0.1	7/25/2004	effective ba	1	6.0	1434.8
20	BMpcpF	9.0	1.3	0.3	7/25/2004	effective ba	2	3.6	521.0
20	BMpcpJ	18.0	2.6	0.6	7/25/2004	effective ba	2	0.8	192.1
19	BCh	17.0	2.4	0.6	7/26/2004	effective ba	1	5.0	901.0
21	BCpcpA	25.0	3.6	0.8	7/26/2004	effective ba	1	7.1	1114.7
21	BCpcpB	25.0	3.6	0.8	7/26/2004	effective ba	1	5.6	1121.6
20	BMe	17.0	2.4	0.6	7/26/2004	effective ba	2	1.5	296.0
20	BMpcpE	8.0	1.1	0.3	7/26/2004	effective ba	2	4.2	754.6
20	BMpcpK	25.0	3.6	0.8	7/26/2004	effective ba	2	-0.7	116.9
20	BTpcpJ	75.0	10.7	2.5	7/26/2004	effective ba	2	-2.6	312.4
20	BMpcpA	1.0	0.1	0.0	7/27/2004	effective ba	1	6.9	1941.2
13	AH	90.0	12.9	-3.0	7/28/2004	area 12 (soi	1	7.4	348.0
20	ATpcpC	6.0	0.9	0.2	7/28/2004	effective ba	2	4.7	612.0
18	BCf	15.0	2.1	0.5	7/28/2004	effective ba	1	6.8	588.0
20	BMpcpD	6.0	0.9	0.2	7/28/2004	effective ba	2	4.8	1509.3
20	BMpcpI	15.0	2.1	0.5	7/28/2004	effective ba	2	1.7	990.8
10	BTj	90.0	12.9	3.0	7/28/2004	effective ba	2	-3.7	271.0
20	ATpcpB	5.0	0.7	0.2	7/29/2004	effective ba	1	5.3	2865.3
20	BMpcpC	5.0	0.7	0.2	7/29/2004	effective ba	1	5.4	1461.9
20	BMpcpH	13.0	1.9	0.4	7/30/2004	effective ba	2	2.3	316.1
20	ATpcpA	3.0	0.4	0.1	7/31/2004	effective ba	1	6.8	1036.9
21	BCpcpH	50.0	7.1	1.7	7/31/2004	effective ba	2	-0.8	338.5
21	BCpcpI	50.0	7.1	1.7	7/31/2004	effective ba	2	-1.4	226.5
21	BCpcpJ	50.0	7.1	1.7	7/31/2004	effective ba	2	-2.0	264.5
20	BMpcpB	3.0	0.4	0.1	7/31/2004	effective ba	1	6.0	586.1
20	BTpcpA	50.0	7.1	1.7	7/31/2004	effective ba	1	6.5	614.1
20	BTpcpB	50.0	7.1	1.7	7/31/2004	effective ba	2	5.0	741.9
20	BTpcpD	70.0	10.0	2.3	7/31/2004	effective ba	2	1.9	817.7
20	BTpcpE	70.0	10.0	2.3	7/31/2004	effective ba	2	1.3	741.2
20	BTpcpF	70.0	10.0	2.3	7/31/2004	effective ba	2	0.7	963.1
20	BTpcpG	70.0	10.0	2.3	7/31/2004	effective ba	2	0.1	11.9
20	BTpcpH	70.0	10.0	2.3	7/31/2004	effective ba	2	-0.5	693.4
20	BTpcpI	70.0	10.0	2.3	7/31/2004	effective ba	2	-1.1	856.1
12	AJ	11.0	1.6	0.4	8/1/2004	crest of bas	1	8.0	612.0
20	BMc	11.0	1.6	0.4	8/1/2004	effective ba	2	3.0	114.0
20	BMpcpG	11.0	1.6	0.4	8/1/2004	effective ba	2	2.9	516.6
20	BMd	10.0	1.4	0.3	8/2/2004	effective ba	2	2.1	303.0
20	BMpcpA	1.0	0.1	0.0	8/2/2004	effective ba	1	6.9	1097.8
20	BMpcpJ	18.0	2.6	0.6	8/2/2004	effective ba	2	0.8	207.8
21	BN	10.0	1.4	0.3	8/2/2004	effective ba	2	1.8	108.0
20	BYpcpI	140.0	18.7	4.7	8/2/2004	effective ba	2	-1.8	543.2
20	BMb	9.0	1.3	0.3	8/3/2004	effective ba	2	3.9	567.0
20	BMpcpF	9.0	1.3	0.3	8/3/2004	effective ba	2	3.6	542.8
21	BUpcpA	110.0	14.7	3.7	8/3/2004	effective ba	1	6.0	406.2
21	BUpcpB	110.0	14.7	3.7	8/3/2004	effective ba	2	4.5	296.3
21	BUpcpC	110.0	14.7	3.7	8/3/2004	effective ba	2	3.0	279.5

Row	Well	Travel time days	wks	mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm
20	BYpcpF	130.0	17.3	4.3	9/24/2003	effective basin	2	0.0	230.6
20	BYpcpG	130.0	17.3	4.3	9/24/2003	effective basin	2	-0.6	15.1
20	BYpcpH	130.0	17.3	4.3	9/24/2003	effective basin	2	-1.2	209.1
8	AB	35.0	5.0	1.2	9/25/2003	west of rest area, runoff slope	1	8.0	419.0
21	BE	35.0	5.0	1.2	9/25/2003	effective basin	2	-0.5	116.0
20	BTpcpD	70.0	10.0	2.3	9/25/2003	effective basin	2	1.9	617.1
20	BTpcpE	70.0	10.0	2.3	9/25/2003	effective basin	2	1.3	653.1
20	BTpcpF	70.0	10.0	2.3	9/25/2003	effective basin	2	0.7	372.8
20	BTpcpG	70.0	10.0	2.3	9/25/2003	effective basin	2	0.1	292.6
20	BTpcpH	70.0	10.0	2.3	9/25/2003	effective basin	2	-0.5	177.8
20	BTpcpI	70.0	10.0	2.3	9/25/2003	effective basin	2	-1.1	237.7
21	BUpcpI	120.0	16.0	4.0	9/25/2003	effective basin	2	-1.6	148.9
20	BYpcpA	120.0	17.1	4.0	9/25/2003	effective basin	1	5.8	253.2
20	BYpcpB	120.0	16.0	4.0	9/25/2003	effective basin	2	4.3	240.8
20	BYpcpC	120.0	16.0	4.0	9/25/2003	effective basin	2	2.8	227.1
9	AD	150.0	21.4	5.0	9/27/2003	b/tw areas 6/16, N of ramp, S of shoulder	1	8.1	462.0
11	AK	240.0	34.3	8.0	9/28/2003	@ E BC, east of median 13 area	1	7.4	614.0
22	BIpcpA	420.0	56.0	14.0	9/28/2003	by back fence area, runoff b/tw BK/BS	1	6.0	1430.3
20	BMpcpJ	18.0	2.6	0.6	9/28/2003	effective basin	2	0.8	422.0
21	CB	240.0	34.3	8.0	9/28/2003	N of WB lane, near 4 UG wells across rd	1	8.6	810.0
16	AS	80	11	3	9/29/2003	area 12 (south shoulder of EB lane)	1	7.4	1413.0
20	BTpcpK	80.0	11.4	2.7	9/29/2003	effective basin	2	-4.2	181.1
20	BYpcpI	140.0	18.7	4.7	9/29/2003	effective basin	2	-1.8	182.9
18	AP	30.0	4.3	1.0	9/30/2003	effective basin	1	8.0	245.0
20	BCi	30.0	4.3	1.0	9/30/2003	effective basin	2	1.1	439.0
21	BCj	42.0	6.0	1.4	9/30/2003	effective basin	2	-0.2	144.0
21	BCpcpC	30.0	4.3	1.0	9/30/2003	effective basin	2	4.1	802.5
22	BG	30.0	4.3	1.0	9/30/2003	effective basin	1	7.6	478.0
20	BMpcpI	15.0	2.1	0.5	10/1/2003	effective basin	2	1.7	675.2
20	BYpcpD	130.0	17.3	4.3	10/1/2003	effective basin	2	1.3	201.7
20	BYpcpE	130.0	17.3	4.3	10/1/2003	effective basin	2	0.7	178.7
20	BYpcpF	130.0	17.3	4.3	10/1/2003	effective basin	2	0.0	225.7
20	BYpcpG	130.0	17.3	4.3	10/1/2003	effective basin	2	-0.6	15.0
20	BYpcpH	130.0	17.3	4.3	10/1/2003	effective basin	2	-1.2	206.9
20	BCd	40.0	5.7	1.3	10/2/2003	effective basin	2	0.2	324.0
20	BCe	40.0	5.7	1.3	10/2/2003	effective basin	2	-1.6	168.0
21	BCpcpD	40.0	5.7	1.3	10/2/2003	effective basin	2	2.6	766.8
21	BCpcpE	40.0	5.7	1.3	10/2/2003	effective basin	2	1.0	447.7
21	BCpcpF	40.0	5.7	1.3	10/2/2003	effective basin	2	0.4	372.8
21	BCpcpG	40.0	5.7	1.3	10/2/2003	effective basin	2	-0.2	862.5
20	BYpcpJ	150	20	5	10/2/2003	effective basin	2	-3.3	183.6
10	AI	200.0	28.6	6.7	10/3/2003	b/tw areas 6/16, N of ramp, S of shoulder	1	8.1	421.0
20	BMpcpH	13.0	1.9	0.4	10/3/2003	effective basin	2	2.3	1434.8
20	BTpcpJ	75.0	10.7	2.5	10/4/2003	effective basin	2	-2.6	238.9
21	BUpcpI	120.0	16.0	4.0	10/4/2003	effective basin	2	-1.6	125.1
20	BYpcpA	120.0	17.1	4.0	10/4/2003	effective basin	1	5.8	281.3
20	BYpcpB	120.0	16.0	4.0	10/4/2003	effective basin	2	4.3	275.9
20	BYpcpC	120.0	16.0	4.0	10/4/2003	effective basin	2	2.8	244.7
20	BCg	25.0	3.6	0.8	10/5/2003	effective basin	2	2.9	452.0
21	BCpcpA	25.0	3.6	0.8	10/5/2003	effective basin	1	7.1	552.0
21	BCpcpB	25.0	3.6	0.8	10/5/2003	effective basin	1	5.6	994.4
20	BMpcpG	11.0	1.6	0.4	10/5/2003	effective basin	2	2.9	1941.2
20	BMpcpK	25.0	3.6	0.8	10/5/2003	effective basin	2	-0.7	232.1
20	BTpcpC	60.0	8.6	2.0	10/5/2003	effective basin	2	3.5	639.0
21	BUpcpA	110.0	14.7	3.7	10/5/2003	effective basin	1	6.0	866.1
21	BUpcpB	110.0	14.7	3.7	10/5/2003	effective basin	2	4.5	12.0
21	BUpcpC	110.0	14.7	3.7	10/5/2003	effective basin	2	3.0	436.7
21	BUpcpD	110.0	14.7	3.7	10/5/2003	effective basin	2	1.5	408.6
21	BUpcpE	110.0	14.7	3.7	10/5/2003	effective basin	2	0.9	349.3
21	BUpcpF	110.0	14.7	3.7	10/5/2003	effective basin	2	0.2	292.8
21	BUpcpG	110.0	14.7	3.7	10/5/2003	effective basin	2	-0.4	223.9
21	BUpcpH	110.0	14.7	3.7	10/5/2003	effective basin	2	-1.0	197.1
8	AB	35.0	5.0	1.2	10/7/2003	west of rest area, runoff slope	1	8.0	378.0
21	BE	35.0	5.0	1.2	10/7/2003	effective basin	2	-0.5	160.0
20	BMpcpF	9.0	1.3	0.3	10/7/2003	effective basin	2	3.6	1181.6
20	BMpcpE	8.0	1.1	0.3	10/8/2003	effective basin	2	4.2	1658.0
20	BTg	70	10	2	10/9/2003	effective basin	2	-0.1	174.0
20	BTh	70	10	2	10/9/2003	effective basin	2	-1.0	158.0
20	BTpcpD	70.0	10.0	2.3	10/9/2003	effective basin	2	1.9	508.6

Row	Well	Travel time days	wks	mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm
21	BUpcpD	110.0	14.7	3.7	8/3/2004	effective ba	2	1.5	754.3
21	BUpcpE	110.0	14.7	3.7	8/3/2004	effective ba	2	0.9	872.2
21	BUpcpF	110.0	14.7	3.7	8/3/2004	effective ba	2	0.2	900.6
21	BUpcpG	110.0	14.7	3.7	8/3/2004	effective ba	2	-0.4	529.3
21	BUpcpH	110.0	14.7	3.7	8/3/2004	effective ba	2	-1.0	516.2
20	BYpcpD	130.0	17.3	4.3	8/3/2004	effective ba	2	1.3	707.0
20	BYpcpE	130.0	17.3	4.3	8/3/2004	effective ba	2	0.7	713.7
20	BYpcpF	130.0	17.3	4.3	8/3/2004	effective ba	2	0.0	993.2
20	BYpcpG	130.0	17.3	4.3	8/3/2004	effective ba	2	-0.6	32.8
20	BYpcpH	130.0	17.3	4.3	8/3/2004	effective ba	2	-1.2	780.1
21	BCpcpC	30.0	4.3	1.0	8/4/2004	effective ba	2	4.1	819.1
20	BMpcpE	8.0	1.1	0.3	8/4/2004	effective ba	2	4.2	797.2
20	BMa	7.0	1.0	0.2	8/5/2004	effective ba	1	4.8	434.0
20	BMpcpI	15.0	2.1	0.5	8/5/2004	effective ba	2	1.7	974.1
20	ATpcpC	6.0	0.9	0.2	8/6/2004	effective ba	2	4.7	462.4
20	BMpcpD	6.0	0.9	0.2	8/6/2004	effective ba	2	4.8	1523.5
16	AS	80.0	11.4	2.7	8/7/2004	area 12 (so	1	7.4	123.0
20	ATpcpB	5.0	0.7	0.2	8/7/2004	effective ba	1	5.3	2699.1
20	BMpcpC	5.0	0.7	0.2	8/7/2004	effective ba	1	5.4	1255.0
20	BMpcpH	13.0	1.9	0.4	8/7/2004	effective ba	2	2.3	581.2
20	BTpcpK	80.0	11.4	2.7	8/7/2004	effective ba	2	-4.2	357.5
20	ATpcpA	3.0	0.4	0.1	8/9/2004	effective ba	1	6.8	1173.3
21	BCpcpA	25.0	3.6	0.8	8/9/2004	effective ba	1	7.1	183.1
21	BCpcpB	25.0	3.6	0.8	8/9/2004	effective ba	1	5.6	536.2
20	BMpcpB	3.0	0.4	0.1	8/9/2004	effective ba	1	6.0	1143.1
20	BMpcpG	11.0	1.6	0.4	8/9/2004	effective ba	2	2.9	1021.7
20	BMpcpK	25.0	3.6	0.8	8/9/2004	effective ba	2	-0.7	115.3
20	AT	2.0	0.3	0.1	8/10/2004	effective ba	1	7.3	630.0
21	BCpcpD	40.0	5.7	1.3	8/10/2004	effective ba	2	2.6	341.6
21	BCpcpE	40.0	5.7	1.3	8/10/2004	effective ba	2	1.0	1133.0
21	BCpcpF	40.0	5.7	1.3	8/10/2004	effective ba	2	0.4	1137.5
21	BCpcpG	40.0	5.7	1.3	8/10/2004	effective ba	2	-0.2	1143.7
20	BTpcpC	60.0	8.6	2.0	8/10/2004	effective ba	2	3.5	542.6
20	BMpcpA	1.0	0.1	0.0	8/11/2004	effective ba	1	6.9	616.0
20	BMpcpF	9.0	1.3	0.3	8/11/2004	effective ba	2	3.6	1174.9
12	AG	130.0	18.6	4.3	8/12/2004	area 12 (so	1	7.3	505.0
19	BCj	42.0	6.0	1.4	8/12/2004	effective ba	2	-0.2	218.0
20	BMpcpE	8.0	1.1	0.3	8/12/2004	effective ba	2	4.2	1168.9
20	BTpcpJ	75.0	10.7	2.5	8/12/2004	effective ba	2	-2.6	608.2
20	BYpcpD	130.0	17.3	4.3	8/12/2004	effective ba	2	1.3	557.0
20	BYpcpE	130.0	17.3	4.3	8/12/2004	effective ba	2	0.7	674.9
20	BYpcpF	130.0	17.3	4.3	8/12/2004	effective ba	2	0.0	906.4
20	BYpcpG	130.0	17.3	4.3	8/12/2004	effective ba	2	-0.6	174.7
20	BYpcpH	130.0	17.3	4.3	8/12/2004	effective ba	2	-1.2	860.3
13	AH	90.0	12.9	3.0	8/13/2004	area 12 (so	1	7.4	397.0
10	BTj	90.0	12.9	3.0	8/13/2004	effective ba	2	-3.7	252.0
21	BUpcpI	120.0	16.0	4.0	8/13/2004	effective ba	2	-1.6	222.0
20	BYpcpA	120.0	17.1	4.0	8/13/2004	effective ba	1	5.8	528.0
20	BYpcpB	120.0	16.0	4.0	8/13/2004	effective ba	2	4.3	440.3
20	BYpcpC	120.0	16.0	4.0	8/13/2004	effective ba	2	2.8	542.6
20	ATpcpC	6.0	0.9	0.2	8/14/2004	effective ba	2	4.7	645.7
9	BCd	40.0	5.7	1.3	8/14/2004	effective ba	2	0.2	404.0
9	BCe	40.0	5.7	1.3	8/14/2004	effective ba	2	-1.6	173.0
20	BMpcpD	6.0	0.9	0.2	8/14/2004	effective ba	2	4.8	1658.4
20	ATpcpB	5.0	0.7	0.2	8/15/2004	effective ba	1	5.3	5919.3
20	BMpcpC	5.0	0.7	0.2	8/15/2004	effective ba	1	5.4	1226.9
20	BMpcpJ	18.0	2.6	0.6	8/16/2004	effective ba	2	0.8	366.9
20	ATpcpA	3.0	0.4	0.1	8/17/2004	effective ba	1	6.8	674.7
20	BMpcpB	3.0	0.4	0.1	8/17/2004	effective ba	1	6.0	186.9
9	BTg	70.0	10.0	2.3	8/17/2004	effective ba	2	-0.1	263.0
21	BTh	70.0	10.0	2.3	8/17/2004	effective ba	2	-1.0	213.0
20	BTpcpD	70.0	10.0	2.3	8/17/2004	effective ba	2	1.9	860.0
20	BTpcpE	70.0	10.0	2.3	8/17/2004	effective ba	2	1.3	870.1
20	BTpcpF	70.0	10.0	2.3	8/17/2004	effective ba	2	0.7	924.5
20	BTpcpG	70.0	10.0	2.3	8/17/2004	effective ba	2	0.1	5.6
20	BTpcpH	70.0	10.0	2.3	8/17/2004	effective ba	2	-0.5	334.2
20	BTpcpI	70.0	10.0	2.3	8/17/2004	effective ba	2	-1.1	449.9
20	BTpcpK	80.0	11.4	2.7	8/18/2004	effective ba	2	-4.2	251.8
20	BE	35.0	5.0	1.2	8/19/2004	effective ba	2	-0.5	187.0
20	BMpcpA	1.0	0.1	0.0	8/19/2004	effective ba	1	6.9	111.5

Row	Well	Travel time days	Travel time wks	Travel time mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm
20	BTpcpE	70.0	10.0	2.3	10/9/2003	effective basin	2	1.3	340.7
20	BTpcpF	70.0	10.0	2.3	10/9/2003	effective basin	2	0.7	345.0
20	BTpcpG	70.0	10.0	2.3	10/9/2003	effective basin	2	0.1	345.9
20	BTpcpH	70.0	10.0	2.3	10/9/2003	effective basin	2	-0.5	233.5
20	BTpcpI	70.0	10.0	2.3	10/9/2003	effective basin	2	-1.1	236.5
20	BYpcpD	130.0	17.3	4.3	10/9/2003	effective basin	2	1.3	278.1
20	BYpcpE	130.0	17.3	4.3	10/9/2003	effective basin	2	0.7	249.1
20	BYpcpF	130.0	17.3	4.3	10/9/2003	effective basin	2	0.0	248.9
20	BYpcpG	130.0	17.3	4.3	10/9/2003	effective basin	2	-0.6	17.6
20	BYpcpH	130.0	17.3	4.3	10/9/2003	effective basin	2	-1.2	204.8
20	BYpcpJ	150	20	5	10/9/2003	effective basin	2	-3.3	197.2
20	ATpcpC	6.0	0.9	0.2	10/10/2003	effective basin	2	4.7	435.1
19	BCa	20.0	2.9	0.7	10/10/2003	effective basin	1	6.0	508.0
19	BCb	20.0	2.9	0.7	10/10/2003	effective basin	2	3.6	673.0
20	BCc	20.0	2.9	0.7	10/10/2003	effective basin	2	2.0	493.0
21	BD	20.0	2.9	0.7	10/10/2003	effective basin	1	5.6	655.0
20	BMpcpD	6.0	0.9	0.2	10/10/2003	effective basin	2	4.8	2363.3
20	ATpcpB	5.0	0.7	0.2	10/11/2003	effective basin	1	5.3	2725.6
20	BMpcpC	5.0	0.7	0.2	10/11/2003	effective basin	1	5.4	2278.9
20	BTf	68	10	2	10/11/2003	effective basin	2	0.7	208.0
21	BUpcpI	120.0	16.0	4.0	10/11/2003	effective basin	2	-1.6	102.9
20	BYpcpA	120.0	17.1	4.0	10/11/2003	effective basin	1	5.8	282.1
20	BYpcpB	120.0	16.0	4.0	10/11/2003	effective basin	2	4.3	242.8
20	BYpcpC	120.0	16.0	4.0	10/11/2003	effective basin	2	2.8	186.3
18	AP	30.0	4.3	1.0	10/12/2003	effective basin	1	8.0	288.0
20	BCi	30.0	4.3	1.0	10/12/2003	effective basin	2	1.1	420.0
21	BCpcpC	30.0	4.3	1.0	10/12/2003	effective basin	2	4.1	761.4
22	BG	30.0	4.3	1.0	10/12/2003	effective basin	1	7.6	654.0
20	BMpcpJ	18.0	2.6	0.6	10/12/2003	effective basin	2	0.8	422.0
20	BYpcpI	140	19	5	10/12/2003	effective basin	2	-1.8	216.7
9	AC	190.0	27.1	6.3	10/13/2003	b/tw areas 6/16, N of ramp, S of shoulder	1	8.2	187.0
20	ATpcpA	3.0	0.4	0.1	10/13/2003	effective basin	1	6.8	440.3
20	BCh	17.0	2.4	0.6	10/13/2003	effective basin	1	5.0	521.0
20	BMe	17.0	2.4	0.6	10/13/2003	effective basin	2	1.5	243.0
20	BMpcpB	3.0	0.4	0.1	10/13/2003	effective basin	1	6.0	928.4
21	BTa	65	9	2	10/14/2003	effective basin	1	5.4	475.0
21	BTb	65	9	2	10/14/2003	effective basin	2	4.4	472.0
21	BTc	65	9	2	10/14/2003	effective basin	2	3.6	392.0
21	BTd	65	9	2	10/14/2003	effective basin	2	2.7	406.0
20	BTe	65	9	2	10/14/2003	effective basin	2	1.7	274.0
21	BUpcpA	110.0	14.7	3.7	10/14/2003	effective basin	1	6.0	960.4
21	BUpcpB	110.0	14.7	3.7	10/14/2003	effective basin	2	4.5	735.8
21	BUpcpC	110.0	14.7	3.7	10/14/2003	effective basin	2	3.0	560.2
21	BUpcpD	110.0	14.7	3.7	10/14/2003	effective basin	2	1.5	525.3
21	BUpcpE	110.0	14.7	3.7	10/14/2003	effective basin	2	0.9	209.6
21	BUpcpF	110.0	14.7	3.7	10/14/2003	effective basin	2	0.2	203.2
21	BUpcpG	110.0	14.7	3.7	10/14/2003	effective basin	2	-0.4	193.6
21	BUpcpH	110.0	14.7	3.7	10/14/2003	effective basin	2	-1.0	149.3
20	BYpcpJ	150.0	20.0	5.0	10/14/2003	effective basin	2	-3.3	197.7
20	BCf	15.0	2.1	0.5	10/15/2003	effective basin	1	6.8	405.0
21	BCpcpH	50.0	7.1	1.7	10/15/2003	effective basin	2	-0.8	168.9
21	BCpcpI	50.0	7.1	1.7	10/15/2003	effective basin	2	-1.4	148.6
21	BCpcpJ	50.0	7.1	1.7	10/15/2003	effective basin	2	-2.0	134.5
20	BMpcpA	1.0	0.1	0.0	10/15/2003	effective basin	1	6.9	168.8
20	BMpcpI	15.0	2.1	0.5	10/15/2003	effective basin	2	1.7	1055.0
20	BTpcpA	50.0	7.1	1.7	10/15/2003	effective basin	1	6.5	264.0
20	BTpcpB	50.0	7.1	1.7	10/15/2003	effective basin	2	5.0	222.8
12	AG	130.0	18.6	4.3	10/17/2003	area 12 (south shoulder of EB lane)	1	7.3	NS
24	AR	300.0	42.9	10.0	10/17/2003	N of WB lane, N of median 8	1	8.1	1332.0
20	BCg	25.0	3.6	0.8	10/17/2003	effective basin	2	2.9	461.0
21	BCpcpA	25.0	3.6	0.8	10/17/2003	effective basin	1	7.1	444.5
21	BCpcpB	25.0	3.6	0.8	10/17/2003	effective basin	1	5.6	811.9
20	BMpcpH	13.0	1.9	0.4	10/17/2003	effective basin	2	2.3	1941.2
20	BMpcpK	25.0	3.6	0.8	10/17/2003	effective basin	2	-0.7	219.4
22	BIpcpA	420.0	56.0	14.0	10/18/2003	by back fence area, runoff b/tw BK/BS	1	6.0	2669.3
20	BTpcpK	80.0	11.4	2.7	10/18/2003	effective basin	2	-4.2	151.7
12	AJ	11.0	1.6	0.4	10/19/2003	crest of basin, comes down slope	1	8.0	202.0
20	BMc	11.0	1.6	0.4	10/19/2003	effective basin	2	3.0	440.0
20	BMpcpG	11.0	1.6	0.4	10/19/2003	effective basin	2	2.9	1519.2
20	BTpcpC	60.0	8.6	2.0	10/19/2003	effective basin	2	3.5	785.4

Row	Well	Travel time days	Travel time wks	Travel time mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm
20	BMpcpI	15.0	2.1	0.5	8/19/2004	effective ba	2	1.7	1106.6
22	BTf	68.0	9.7	2.3	8/19/2004	effective ba	2	0.7	376.0
21	BCpcpC	30.0	4.3	1.0	8/20/2004	effective ba	2	4.1	371.0
21	BCpcpH	50.0	7.1	1.7	8/20/2004	effective ba	2	-0.8	866.8
21	BCpcpI	50.0	7.1	1.7	8/20/2004	effective ba	2	-1.4	570.7
21	BCpcpJ	50.0	7.1	1.7	8/20/2004	effective ba	2	-2.0	454.3
20	BTpcpA	50.0	7.1	1.7	8/20/2004	effective ba	1	6.5	129.3
20	BTpcpB	50.0	7.1	1.7	8/20/2004	effective ba	2	5.0	257.4
20	BMpcpH	13.0	1.9	0.4	8/21/2004	effective ba	2	2.3	968.4
14	AF	120.0	17.1	4.0	8/22/2004	area 12 (sou	1	7.3	198.0
21	BTa	65.0	9.3	2.2	8/22/2004	effective ba	1	5.4	200.0
21	BTb	65.0	9.3	2.2	8/22/2004	effective ba	2	4.4	600.0
21	BTc	65.0	9.3	2.2	8/22/2004	effective ba	2	3.6	607.0
22	BTd	65.0	9.3	2.2	8/22/2004	effective ba	2	2.7	712.0
22	BTe	65.0	9.3	2.2	8/22/2004	effective ba	2	1.7	506.0
21	BUpcpI	120.0	16.0	4.0	8/22/2004	effective ba	2	-1.6	241.4
20	BYpcpA	120.0	17.1	4.0	8/22/2004	effective ba	1	5.8	587.2
20	BYpcpB	120.0	16.0	4.0	8/22/2004	effective ba	2	4.3	454.3
20	BYpcpC	120.0	16.0	4.0	8/22/2004	effective ba	2	2.8	527.8
20	BZ	120.0	17.1	4.0	8/22/2004	effective ba	1	6.7	338.0
16	AS	80.0	11.4	2.7	8/23/2004	area 12 (sou	1	7.4	141.0
20	BMpcpG	11.0	1.6	0.4	8/23/2004	effective ba	2	2.9	1030.9
20	BTpcpJ	75.0	10.7	2.5	8/23/2004	effective ba	2	-2.6	396.6
20	BTpcpK	80.0	11.4	2.7	8/23/2004	effective ba	2	-4.2	240.2
21	BUpcpA	110.0	14.7	3.7	8/23/2004	effective ba	1	6.0	410.7
21	BUpcpB	110.0	14.7	3.7	8/23/2004	effective ba	2	4.5	330.2
21	BUpcpC	110.0	14.7	3.7	8/23/2004	effective ba	2	3.0	352.7
21	BUpcpD	110.0	14.7	3.7	8/23/2004	effective ba	2	1.5	870.1
21	BUpcpE	110.0	14.7	3.7	8/23/2004	effective ba	2	0.9	658.8
21	BUpcpF	110.0	14.7	3.7	8/23/2004	effective ba	2	0.2	541.8
21	BUpcpG	110.0	14.7	3.7	8/23/2004	effective ba	2	-0.4	566.0
21	BUpcpH	110.0	14.7	3.7	8/23/2004	effective ba	2	-1.0	346.7
22	BCi	30.0	4.3	1.0	8/24/2004	effective ba	2	1.1	693.0
20	BG	30.0	4.3	1.0	8/24/2004	N of WB la	1	7.6	522.0
21	BCpcpA	25.0	3.6	0.8	8/25/2004	effective ba	1	7.1	335.0
21	BCpcpB	25.0	3.6	0.8	8/25/2004	effective ba	1	5.6	176.9
20	BMpcpF	9.0	1.3	0.3	8/25/2004	effective ba	2	3.6	1557.7
20	BMpcpK	25.0	3.6	0.8	8/25/2004	effective ba	2	-0.7	227.7
20	BMpcpE	8.0	1.1	0.3	8/26/2004	effective ba	2	4.2	1247.0
20	BTpcpC	60.0	8.6	2.0	8/27/2004	effective ba	2	3.5	323.3
20	ATpcpC	6.0	0.9	0.2	8/28/2004	effective ba	2	4.7	606.7
20	BMpcpD	6.0	0.9	0.2	8/28/2004	effective ba	2	4.8	699.6
20	BTpcpD	70.0	10.0	2.3	8/28/2004	effective ba	2	1.9	752.5
20	BTpcpE	70.0	10.0	2.3	8/28/2004	effective ba	2	1.3	708.7
20	BTpcpF	70.0	10.0	2.3	8/28/2004	effective ba	2	0.7	726.1
20	BTpcpG	70.0	10.0	2.3	8/28/2004	effective ba	2	0.1	683.4
20	BTpcpH	70.0	10.0	2.3	8/28/2004	effective ba	2	-0.5	404.5
20	BTpcpI	70.0	10.0	2.3	8/28/2004	effective ba	2	-1.1	315.5
20	BTpcpJ	75.0	10.7	2.5	8/28/2004	effective ba	2	-2.6	442.3
20	ATpcpB	5.0	0.7	0.2	8/29/2004	effective ba	1	5.3	3574.5
18	BCg	25.0	3.6	0.8	8/29/2004	effective ba	2	2.9	478.0
20	BMpcpC	5.0	0.7	0.2	8/29/2004	effective ba	1	5.4	394.4
21	BCpcpD	40.0	5.7	1.3	8/30/2004	effective ba	2	2.6	1090.2
21	BCpcpE	40.0	5.7	1.3	8/30/2004	effective ba	2	1.0	686.3
21	BCpcpF	40.0	5.7	1.3	8/30/2004	effective ba	2	0.4	1053.4
21	BCpcpG	40.0	5.7	1.3	8/30/2004	effective ba	2	-0.2	1638.3
20	ATpcpA	3.0	0.4	0.1	8/31/2004	effective ba	1	6.8	972.6
20	BMpcpB	3.0	0.4	0.1	8/31/2004	effective ba	1	6.0	357.5
20	BMpcpJ	18.0	2.6	0.6	9/1/2004	effective ba	2	0.8	546.2
21	BUpcpA	110.0	14.7	3.7	9/1/2004	effective ba	1	6.0	556.3
21	BUpcpB	110.0	14.7	3.7	9/1/2004	effective ba	2	4.5	397.5
21	BUpcpC	110.0	14.7	3.7	9/1/2004	effective ba	2	3.0	666.7
21	BUpcpD	110.0	14.7	3.7	9/1/2004	effective ba	2	1.5	668.3
21	BUpcpE	110.0	14.7	3.7	9/1/2004	effective ba	2	0.9	449.9
21	BUpcpF	110.0	14.7	3.7	9/1/2004	effective ba	2	0.2	396.6
21	BUpcpG	110.0	14.7	3.7	9/1/2004	effective ba	2	-0.4	407.6
21	BUpcpH	110.0	14.7	3.7	9/1/2004	effective ba	2	-1.0	286.8
20	BMpcpA	1.0	0.1	0.0	9/2/2004	effective ba	1	6.9	343.3
9	BTg	70.0	10.0	2.3	9/2/2004	effective ba	2	-0.1	258.0

Row	Well	Travel time days	wks	mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm
21	BUpcpI	120.0	16.0	4.0	10/19/2003	effective basin	2	-1.6	130.7
20	BYpcpA	120.0	17.1	4.0	10/19/2003	effective basin	1	5.8	456.8
20	BYpcpB	120.0	16.0	4.0	10/19/2003	effective basin	2	4.3	289.0
20	BYpcpC	120.0	16.0	4.0	10/19/2003	effective basin	2	2.8	271.2
20	BYpcpI	140	19	5	10/19/2003	effective basin	2	-1.8	205.7
19	BMd	10.0	1.4	0.3	10/20/2003	effective basin	2	2.1	327.0
19	BN	10.0	1.4	0.3	10/20/2003	effective basin	2	1.8	430.0
20	BMb	9.0	1.3	0.3	10/21/2003	effective basin	2	3.9	438.0
20	BMpcpF	9.0	1.3	0.3	10/21/2003	effective basin	2	3.6	1688.0
21	BUpcpA	110.0	14.7	3.7	10/21/2003	effective basin	1	6.0	1032.1
21	BUpcpB	110.0	14.7	3.7	10/21/2003	effective basin	2	4.5	645.5
21	BUpcpC	110.0	14.7	3.7	10/21/2003	effective basin	2	3.0	465.8
21	BUpcpD	110.0	14.7	3.7	10/21/2003	effective basin	2	1.5	216.2
21	BUpcpE	110.0	14.7	3.7	10/21/2003	effective basin	2	0.9	184.5
21	BUpcpF	110.0	14.7	3.7	10/21/2003	effective basin	2	0.2	174.6
21	BUpcpG	110.0	14.7	3.7	10/21/2003	effective basin	2	-0.4	153.1
21	BUpcpH	110.0	14.7	3.7	10/21/2003	effective basin	2	-1.0	121.2
7	AA	160.0	22.9	5.3	10/22/2003	rest area	1	8.4	NS
13	AH	90.0	12.9	3.0	10/22/2003	area 12 (south shoulder of EB lane)	1	7.4	517.0
19	BCa	20.0	2.9	0.7	10/22/2003	effective basin	1	6.0	421.0
19	BCb	20.0	2.9	0.7	10/22/2003	effective basin	2	3.6	477.0
20	BCc	20.0	2.9	0.7	10/22/2003	effective basin	2	2.0	521.0
21	BD	20.0	2.9	0.7	10/22/2003	effective basin	1	5.6	613.0
20	BMpcpE	8.0	1.1	0.3	10/22/2003	effective basin	2	4.2	759.6
20	BTj	90.0	12.9	3.0	10/22/2003	effective basin	2	-3.7	186.0
20	BYpcpD	130	17	4	10/22/2003	effective basin	2	1.3	334.6
20	BYpcpE	130	17	4	10/22/2003	effective basin	2	0.7	277.6
20	BYpcpF	130	17	4	10/22/2003	effective basin	2	0.0	334.6
20	BYpcpG	130	17	4	10/22/2003	effective basin	2	-0.6	18.1
20	BYpcpH	130	17	4	10/22/2003	effective basin	2	-1.2	249.8
8	CA	160.0	22.9	5.3	10/22/2003	rest area, near E BC	1	6.1	434.0
19	BMa	7.0	1.0	0.2	10/23/2003	effective basin	1	4.8	496.0
20	BTpcpJ	75.0	10.7	2.5	10/23/2003	effective basin	2	-2.6	276.2
20	BYpcpJ	150.0	20.0	5.0	10/23/2003	effective basin	2	-3.3	181.5
20	ATpcpC	6.0	0.9	0.2	10/24/2003	effective basin	2	4.7	695.5
20	BMpcpD	6.0	0.9	0.2	10/24/2003	effective basin	2	4.8	844.0
20	BMpcpJ	18.0	2.6	0.6	10/24/2003	effective basin	2	0.8	337.6
20	BYpcpI	140.0	18.7	4.7	10/24/2003	effective basin	2	-1.8	-200.7
20	ATpcpB	5.0	0.7	0.2	10/25/2003	effective basin	1	5.3	2687.5
20	BCh	17.0	2.4	0.6	10/25/2003	effective basin	1	5.0	624.0
21	BCpcpD	40.0	5.7	1.3	10/25/2003	effective basin	2	2.6	448.8
21	BCpcpE	40.0	5.7	1.3	10/25/2003	effective basin	2	1.0	454.3
21	BCpcpF	40.0	5.7	1.3	10/25/2003	effective basin	2	0.4	344.1
21	BCpcpG	40.0	5.7	1.3	10/25/2003	effective basin	2	-0.2	936.3
20	BMc	17.0	2.4	0.6	10/25/2003	effective basin	2	1.5	202.0
20	BMpcpC	5.0	0.7	0.2	10/25/2003	effective basin	1	5.4	928.4
11	AK	240.0	34.3	8.0	10/26/2003	@ E BC, east of median 13 area	1	7.4	481.0
21	CB	240.0	34.3	8.0	10/26/2003	N of WB lane, near 4 UG wells across rd	1	8.6	1138.0
14	AF	120.0	17.1	4.0	10/27/2003	area 12 (south shoulder of EB lane)	1	7.3	1403.0
20	ATpcpA	3.0	0.4	0.1	10/27/2003	effective basin	1	6.8	249.4
20	BCf	15.0	2.1	0.5	10/27/2003	effective basin	1	6.8	292.0
22	BIpcpA	420.0	56.0	14.0	10/27/2003	by back fence area, runoff b/tw BK/BS	1	6.0	2595.9
20	BMpcpB	3.0	0.4	0.1	10/27/2003	effective basin	1	6.0	151.9
20	BMpcpI	15.0	2.1	0.5	10/27/2003	effective basin	2	1.7	928.4
21	BZ	120.0	17.1	4.0	10/27/2003	effective basin	1	6.7	184.0
14	AN	210.0	30.0	7.0	10/28/2003	area 12 (south shoulder of EB lane)	1	8.0	687.0
20	AT	2.0	0.3	0.1	10/28/2003	effective basin	1	7.3	361.0
20	BTpcpD	70.0	10.0	2.3	10/28/2003	effective basin	2	1.9	508.6
20	BTpcpE	70.0	10.0	2.3	10/28/2003	effective basin	2	1.3	237.9
20	BTpcpF	70.0	10.0	2.3	10/28/2003	effective basin	2	0.7	238.7
20	BTpcpG	70.0	10.0	2.3	10/28/2003	effective basin	2	0.1	264.0
20	BTpcpH	70.0	10.0	2.3	10/28/2003	effective basin	2	-0.5	177.4
20	BTpcpI	70.0	10.0	2.3	10/28/2003	effective basin	2	-1.1	256.2
15	AO	50	7	2	10/29/2003	near BO cluster, not "effective" area	1	8.2	164.0
21	BCpcpH	50.0	7.1	1.7	10/29/2003	effective basin	2	-0.8	128.4
21	BCpcpI	50.0	7.1	1.7	10/29/2003	effective basin	2	-1.4	141.9
21	BCpcpJ	50.0	7.1	1.7	10/29/2003	effective basin	2	-2.0	137.4
20	BMpcpA	1.0	0.1	0.0	10/29/2003	effective basin	1	6.9	194.1
20	BMpcpH	13.0	1.9	0.4	10/29/2003	effective basin	2	2.3	1688.0
20	BTk	50	7	2	10/29/2003	effective basin	1	7.3	475.0

Row	Well	Travel time days	wks	mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm
21	BTh	70.0	10.0	2.3	9/2/2004	effective ba	2	-1.0	182.0
20	BTpcpD	70.0	10.0	2.3	9/2/2004	effective ba	2	1.9	1033.3
20	BTpcpE	70.0	10.0	2.3	9/2/2004	effective ba	2	1.3	811.9
20	BTpcpF	70.0	10.0	2.3	9/2/2004	effective ba	2	0.7	631.4
20	BTpcpG	70.0	10.0	2.3	9/2/2004	effective ba	2	0.1	5.5
20	BTpcpH	70.0	10.0	2.3	9/2/2004	effective ba	2	-0.5	362.0
20	BTpcpI	70.0	10.0	2.3	9/2/2004	effective ba	2	-1.1	339.1
20	BTpcpK	80.0	11.4	2.7	9/2/2004	effective ba	2	-4.2	184.4
21	BCa	20.0	2.9	0.7	9/3/2004	effective ba	1	6.0	122.0
9	BCb	20.0	2.9	0.7	9/3/2004	effective ba	2	3.6	372.0
18	BCc	20.0	2.9	0.7	9/3/2004	effective ba	2	2.0	651.0
19	BD	20.0	2.9	0.7	9/3/2004	effective ba	1	5.6	143.0
20	BMpcpI	15.0	2.1	0.5	9/4/2004	effective ba	2	1.7	929.2
22	BTf	68.0	9.7	2.3	9/4/2004	effective ba	2	0.7	404.0
19	BCh	17.0	2.4	0.6	9/6/2004	effective ba	1	5.0	208.0
21	BCpcpH	50.0	7.1	1.7	9/6/2004	effective ba	2	-0.8	334.2
21	BCpcpI	50.0	7.1	1.7	9/6/2004	effective ba	2	-1.4	449.9
21	BCpcpJ	50.0	7.1	1.7	9/6/2004	effective ba	2	-2.0	608.2
20	BMe	17.0	2.4	0.6	9/6/2004	effective ba	2	1.5	810.0
20	BMpcpH	13.0	1.9	0.4	9/6/2004	effective ba	2	2.3	1284.1
19	BTk	50.0	7.1	1.7	9/6/2004	effective ba	1	7.3	602.0
20	BTpcpA	50.0	7.1	1.7	9/6/2004	effective ba	1	6.5	514.9
20	BTpcpB	50.0	7.1	1.7	9/6/2004	effective ba	2	5.0	269.4
21	BTa	65.0	9.3	2.2	9/7/2004	effective ba	1	5.4	142.0
21	BTb	65.0	9.3	2.2	9/7/2004	effective ba	2	4.4	518.0
21	BTc	65.0	9.3	2.2	9/7/2004	effective ba	2	3.6	494.0
22	BTd	65.0	9.3	2.2	9/7/2004	effective ba	2	2.7	509.0
22	BTe	65.0	9.3	2.2	9/7/2004	effective ba	2	1.7	471.0
20	BTpcpC	60.0	8.6	2.0	9/7/2004	effective ba	2	3.5	668.8
20	BTpcpJ	75.0	10.7	2.5	9/7/2004	effective ba	2	-2.6	583.4
18	BCf	15.0	2.1	0.5	9/8/2004	effective ba	1	6.8	145.0
20	BMpcpG	11.0	1.6	0.4	9/8/2004	effective ba	2	2.9	1083.5
21	BCpcpC	30.0	4.3	1.0	9/9/2004	effective ba	2	4.1	379.8
20	BMpcpF	9.0	1.3	0.3	9/10/2004	effective ba	2	3.6	973.3
20	BMpcpE	8.0	1.1	0.3	9/11/2004	effective ba	2	4.2	679.8
20	BMc	11.0	1.6	0.4	9/12/2004	effective ba	2	3.0	388.0
20	BTpcpC	60.0	8.6	2.0	9/12/2004	effective ba	2	3.5	427.0
20	BTpcpD	70.0	10.0	2.3	9/12/2004	effective ba	2	1.9	339.4
20	BTpcpE	70.0	10.0	2.3	9/12/2004	effective ba	2	1.3	697.8
20	BTpcpF	70.0	10.0	2.3	9/12/2004	effective ba	2	0.7	780.5
20	BTpcpG	70.0	10.0	2.3	9/12/2004	effective ba	2	0.1	8.8
20	BTpcpH	70.0	10.0	2.3	9/12/2004	effective ba	2	-0.5	516.2
20	BTpcpI	70.0	10.0	2.3	9/12/2004	effective ba	2	-1.1	511.1
20	ATpcpC	6.0	0.9	0.2	9/13/2004	effective ba	2	4.7	656.3
20	BMd	10.0	1.4	0.3	9/13/2004	effective ba	2	2.1	683.0
20	BMpcpD	6.0	0.9	0.2	9/13/2004	effective ba	2	4.8	683.2
21	BN	10.0	1.4	0.3	9/13/2004	effective ba	2	1.8	446.0
20	ATpcpB	5.0	0.7	0.2	9/14/2004	effective ba	1	5.3	3139.0
19	BCj	42.0	6.0	1.4	9/14/2004	effective ba	2	-0.2	467.0
21	BCpcpA	25.0	3.6	0.8	9/14/2004	effective ba	1	7.1	32.3
21	BCpcpB	25.0	3.6	0.8	9/14/2004	effective ba	1	5.6	230.0
20	BMb	9.0	1.3	0.3	9/14/2004	effective ba	2	3.9	488.0
20	BMpcpC	5.0	0.7	0.2	9/14/2004	effective ba	1	5.4	1198.5
20	BMpcpK	25.0	3.6	0.8	9/14/2004	effective ba	2	-0.7	242.4
20	ATpcpA	3.0	0.4	0.1	9/16/2004	effective ba	1	6.8	502.5
9	BCd	40.0	5.7	1.3	9/16/2004	effective ba	2	0.2	542.0
9	BCe	40.0	5.7	1.3	9/16/2004	effective ba	2	-1.6	495.0
21	BCpcpD	40.0	5.7	1.3	9/16/2004	effective ba	2	2.6	860.0
21	BCpcpE	40.0	5.7	1.3	9/16/2004	effective ba	2	1.0	870.1
21	BCpcpF	40.0	5.7	1.3	9/16/2004	effective ba	2	0.4	924.5
21	BCpcpG	40.0	5.7	1.3	9/16/2004	effective ba	2	-0.2	5.6
20	BMa	7.0	1.0	0.2	9/16/2004	effective ba	1	4.8	773.0
20	BMpcpB	3.0	0.4	0.1	9/16/2004	effective ba	1	6.0	142.7
21	BCpcpH	50.0	7.1	1.7	9/17/2004	effective ba	2	-0.8	404.5
21	BCpcpI	50.0	7.1	1.7	9/17/2004	effective ba	2	-1.4	458.8
21	BCpcpJ	50.0	7.1	1.7	9/17/2004	effective ba	2	-2.0	339.9
20	BTpcpA	50.0	7.1	1.7	9/17/2004	effective ba	1	6.5	276.9
20	BTpcpB	50.0	7.1	1.7	9/17/2004	effective ba	2	5.0	177.4
20	BMpcpA	1.0	0.1	0.0	9/18/2004	effective ba	1	6.9	111.7
13	AH	90.0	12.9	3.0	9/21/2004	area 12 (so	1	7.4	575.0

Row	Well	Travel time days	wks	mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm
20	BTpcpA	50.0	7.1	1.7	10/29/2003	effective basin	1	6.5	212.5
20	BTpcpB	50.0	7.1	1.7	10/29/2003	effective basin	2	5.0	520.1
21	BUpcpA	110.0	14.7	3.7	10/29/2003	effective basin	1	6.0	878.4
21	BUpcpB	110.0	14.7	3.7	10/29/2003	effective basin	2	4.5	565.4
21	BUpcpC	110.0	14.7	3.7	10/29/2003	effective basin	2	3.0	383.3
21	BUpcpD	110.0	14.7	3.7	10/29/2003	effective basin	2	1.5	347.6
21	BUpcpE	110.0	14.7	3.7	10/29/2003	effective basin	2	0.9	202.8
21	BUpcpF	110.0	14.7	3.7	10/29/2003	effective basin	2	0.2	266.7
21	BUpcpG	110.0	14.7	3.7	10/29/2003	effective basin	2	-0.4	196.5
21	BUpcpH	110.0	14.7	3.7	10/29/2003	effective basin	2	-1.0	175.6
20	BYpcpD	130	17	4	10/29/2003	effective basin	2	1.3	271.6
20	BYpcpE	130	17	4	10/29/2003	effective basin	2	0.7	266.3
20	BYpcpF	130	17	4	10/29/2003	effective basin	2	0.0	455.0
20	BYpcpG	130	17	4	10/29/2003	effective basin	2	-0.6	18.2
20	BYpcpH	130	17	4	10/29/2003	effective basin	2	-1.2	242.0
12	AJ	11.0	1.6	0.4	10/31/2003	crest of basin, comes down slope	1	8.0	247.0
20	BMc	11.0	1.6	0.4	10/31/2003	effective basin	2	3.0	575.0
20	BMpcpG	11.0	1.6	0.4	10/31/2003	effective basin	2	2.9	1097.2
9	AD	150.0	21.4	5.0	11/1/2003	b/tw areas 6/16, N of ramp, S of shoulder	1	8.1	381.0
16	AS	80.0	11.4	2.7	11/1/2003	area 12 (south shoulder of EB lane)	1	7.4	1377.0
19	BMd	10.0	1.4	0.3	11/1/2003	effective basin	2	2.1	319.0
19	BN	10.0	1.4	0.3	11/1/2003	effective basin	2	1.8	497.0
21	BUpcpI	120	16	4	11/1/2003	effective basin	2	-1.6	147.5
20	BYpcpA	120	17	4	11/1/2003	effective basin	1	5.8	323.6
20	BYpcpB	120	16	4	11/1/2003	effective basin	2	4.3	280.8
20	BYpcpC	120	16	4	11/1/2003	effective basin	2	2.8	255.8
20	BYpcpJ	150.0	20.0	5.0	11/1/2003	effective basin	2	-3.3	139.9
20	BMb	9.0	1.3	0.3	11/2/2003	effective basin	2	3.9	340.0
20	BMpcpF	9.0	1.3	0.3	11/2/2003	effective basin	2	3.6	1139.4
20	BYpcpI	140.0	18.7	4.7	11/2/2003	effective basin	2	-1.8	178.0
20	BMpcpE	8.0	1.1	0.3	11/3/2003	effective basin	2	4.2	1519.2
20	BYpcpD	130.0	17.3	4.3	11/3/2003	effective basin	2	1.3	267.4
20	BYpcpE	130.0	17.3	4.3	11/3/2003	effective basin	2	0.7	257.5
20	BYpcpF	130.0	17.3	4.3	11/3/2003	effective basin	2	0.0	429.2
20	BYpcpG	130.0	17.3	4.3	11/3/2003	effective basin	2	-0.6	18.3
20	BYpcpH	130.0	17.3	4.3	11/3/2003	effective basin	2	-1.2	262.3
21	BCpcpC	30.0	4.3	1.0	11/4/2003	effective basin	2	4.1	277.8
19	BMa	7.0	1.0	0.2	11/4/2003	effective basin	1	4.8	380.0
20	BTpcpK	80.0	11.4	2.7	11/4/2003	effective basin	2	-4.2	141.9
20	ATpcpC	6.0	0.9	0.2	11/5/2003	effective basin	2	4.7	271.9
20	BMpcpD	6.0	0.9	0.2	11/5/2003	effective basin	2	4.8	1012.8
20	ATpcpB	5.0	0.7	0.2	11/6/2003	effective basin	1	5.3	1840.4
21	BCj	42	6	1	11/6/2003	effective basin	2	-0.2	126.0
20	BMpcpC	5.0	0.7	0.2	11/6/2003	effective basin	1	5.4	844.0
20	BYpcpJ	150.0	20.0	5.0	11/6/2003	effective basin	2	-3.3	193.2
10	AI	200.0	28.6	6.7	11/7/2003	b/tw areas 6/16, N of ramp, S of shoulder	1	8.1	579.0
20	BTpcpC	60.0	8.6	2.0	11/7/2003	effective basin	2	3.5	309.3
20	ATpcpA	3.0	0.4	0.1	11/8/2003	effective basin	1	6.8	333.4
20	BCd	40	6	1	11/8/2003	effective basin	2	0.2	239.0
20	BCe	40	6	1	11/8/2003	effective basin	2	-1.6	144.0
21	BCpcpD	40.0	5.7	1.3	11/8/2003	effective basin	2	2.6	339.1
21	BCpcpE	40.0	5.7	1.3	11/8/2003	effective basin	2	1.0	511.1
21	BCpcpF	40.0	5.7	1.3	11/8/2003	effective basin	2	0.4	345.0
21	BCpcpG	40.0	5.7	1.3	11/8/2003	effective basin	2	-0.2	979.9
20	BMpcpB	3.0	0.4	0.1	11/8/2003	effective basin	1	6.0	1772.4
21	BUpcpI	120	16	4	11/8/2003	effective basin	2	-1.6	332.8
20	BYpcpA	120	17	4	11/8/2003	effective basin	1	5.8	294.1
20	BYpcpB	120	16	4	11/8/2003	effective basin	2	4.3	276.8
20	BYpcpC	120	16	4	11/8/2003	effective basin	2	2.8	229.3
20	AT	2.0	0.3	0.1	11/9/2003	effective basin	1	7.3	319.0
21	BCpcpA	25.0	3.6	0.8	11/9/2003	effective basin	1	7.1	528.0
21	BCpcpB	25.0	3.6	0.8	11/9/2003	effective basin	1	5.6	501.3
20	BMpcpK	25.0	3.6	0.8	11/9/2003	effective basin	2	-0.7	236.3
20	BTpcpJ	75.0	10.7	2.5	11/9/2003	effective basin	2	-2.6	290.4
20	BMpcpA	1.0	0.1	0.0	11/10/2003	effective basin	1	6.9	270.1
20	BTg	70.0	10.0	2.3	11/11/2003	effective basin	2	-0.1	231.0
20	BTh	70.0	10.0	2.3	11/11/2003	effective basin	2	-1.0	208.0
21	BUpcpA	110	15	4	11/11/2003	effective basin	1	6.0	947.0
21	BUpcpB	110	15	4	11/11/2003	effective basin	2	4.5	555.1

Row	Well	Travel time days	wks	mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm
20	AT	2.0	0.3	0.1	9/21/2004	effective ba	1	7.3	865.0
20	BE	35.0	5.0	1.2	9/21/2004	effective ba	2	-0.5	364.0
20	BMpcpJ	18.0	2.6	0.6	9/21/2004	effective ba	2	0.8	681.5
10	BTj	90.0	12.9	3.0	9/21/2004	effective ba	2	-3.7	189.0
15	AO	50.0	7.1	1.7	9/22/2004	near BO ch	1	8.2	NM
21	BCpcpH	50.0	7.1	1.7	9/22/2004	effective ba	2	-0.8	529.1
21	BCpcpI	50.0	7.1	1.7	9/22/2004	effective ba	2	-1.4	367.3
21	BCpcpJ	50.0	7.1	1.7	9/22/2004	effective ba	2	-2.0	294.8
19	BTk	50.0	7.1	1.7	9/22/2004	effective ba	1	7.3	337.0
20	BTpcpA	50.0	7.1	1.7	9/22/2004	effective ba	1	6.5	307.1
20	BTpcpB	50.0	7.1	1.7	9/22/2004	effective ba	2	5.0	187.3
20	BTpcpC	60.0	8.6	2.0	9/22/2004	effective ba	2	3.5	376.3
20	BTpcpK	80.0	11.4	2.7	9/22/2004	effective ba	2	-4.2	233.9
20	BMpcpI	15.0	2.1	0.5	9/24/2004	effective ba	2	1.7	1141.4
18	AP	30.0	4.3	1.0	9/26/2004	effective ba	1	8.0	306.0
22	BCi	30.0	4.3	1.0	9/26/2004	effective ba	2	1.1	563.0
21	BCpcpC	30.0	4.3	1.0	9/26/2004	effective ba	2	4.1	323.3
20	BG	30.0	4.3	1.0	9/26/2004	N of WB la	1	7.6	252.0
20	BMpcpH	13.0	1.9	0.4	9/26/2004	effective ba	2	2.3	577.9
21	BCpcpD	40.0	5.7	1.3	9/27/2004	effective ba	2	2.6	430.0
21	BCpcpE	40.0	5.7	1.3	9/27/2004	effective ba	2	1.0	654.1
21	BCpcpF	40.0	5.7	1.3	9/27/2004	effective ba	2	0.4	484.1
21	BCpcpG	40.0	5.7	1.3	9/27/2004	effective ba	2	-0.2	713.1
20	BTpcpJ	75.0	10.7	2.5	9/27/2004	effective ba	2	-2.6	420.8
20	BMpcpG	11.0	1.6	0.4	9/28/2004	effective ba	2	2.9	1072.4
19	BCj	42.0	6.0	1.4	9/30/2004	effective ba	2	-0.2	282.0
20	BMpcpF	9.0	1.3	0.3	9/30/2004	effective ba	2	3.6	1023.3
16	AS	80.0	11.4	2.7	10/1/2004	area 12 (sot	1	7.4	80.0
18	BCg	25.0	3.6	0.8	10/1/2004	effective ba	2	2.9	214.0
21	BCpcpA	25.0	3.6	0.8	10/1/2004	effective ba	1	7.1	743.8
21	BCpcpB	25.0	3.6	0.8	10/1/2004	effective ba	1	5.6	161.6
20	BMpcpE	8.0	1.1	0.3	10/1/2004	effective ba	2	4.2	658.8
20	BMpcpK	25.0	3.6	0.8	10/1/2004	effective ba	2	-0.7	184.7
20	BTpcpK	80.0	11.4	2.7	10/1/2004	effective ba	2	-4.2	245.9
9	BCd	40.0	5.7	1.3	10/2/2004	effective ba	2	0.2	405.0
9	BCe	40.0	5.7	1.3	10/2/2004	effective ba	2	-1.6	210.0
21	BCpcpD	40.0	5.7	1.3	10/2/2004	effective ba	2	2.6	734.2
21	BCpcpE	40.0	5.7	1.3	10/2/2004	effective ba	2	1.0	676.6
21	BCpcpF	40.0	5.7	1.3	10/2/2004	effective ba	2	0.4	494.1
21	BCpcpG	40.0	5.7	1.3	10/2/2004	effective ba	2	-0.2	717.1
21	BCpcpH	50.0	7.1	1.7	10/2/2004	effective ba	2	-0.8	458.8
21	BCpcpI	50.0	7.1	1.7	10/2/2004	effective ba	2	-1.4	391.9
21	BCpcpJ	50.0	7.1	1.7	10/2/2004	effective ba	2	-2.0	333.4
20	BTpcpA	50.0	7.1	1.7	10/2/2004	effective ba	1	6.5	343.3
20	BTpcpB	50.0	7.1	1.7	10/2/2004	effective ba	2	5.0	215.5
20	BTpcpD	70.0	10.0	2.3	10/2/2004	effective ba	2	1.9	707.0
20	BTpcpE	70.0	10.0	2.3	10/2/2004	effective ba	2	1.3	658.8
20	BTpcpF	70.0	10.0	2.3	10/2/2004	effective ba	2	0.7	541.8
20	BTpcpG	70.0	10.0	2.3	10/2/2004	effective ba	2	0.1	297.9
20	BTpcpH	70.0	10.0	2.3	10/2/2004	effective ba	2	-0.5	404.5
20	BTpcpI	70.0	10.0	2.3	10/2/2004	effective ba	2	-1.1	512.4
20	ATpcpC	6.0	0.9	0.2	10/3/2004	effective ba	2	4.7	5154.3
20	BMpcpD	6.0	0.9	0.2	10/3/2004	effective ba	2	4.8	954.0
20	ATpcpB	5.0	0.7	0.2	10/4/2004	effective ba	1	5.3	3012.4
20	BMpcpC	5.0	0.7	0.2	10/4/2004	effective ba	1	5.4	705.3
20	ATpcpA	3.0	0.4	0.1	10/6/2004	effective ba	1	6.8	1077.5
21	BCa	20.0	2.9	0.7	10/6/2004	effective ba	1	6.0	96.0
9	BCb	20.0	2.9	0.7	10/6/2004	effective ba	2	3.6	222.0
18	BCc	20.0	2.9	0.7	10/6/2004	effective ba	2	2.0	387.0
19	BD	20.0	2.9	0.7	10/6/2004	effective ba	1	5.6	127.0
20	BMpcpB	3.0	0.4	0.1	10/6/2004	effective ba	1	6.0	104.1
20	BTpcpJ	75.0	10.7	2.5	10/6/2004	effective ba	2	-2.6	484.1
8	AB	35.0	5.0	1.2	10/7/2004	west of rest	1	8.0	NM
21	BCpcpC	30.0	4.3	1.0	10/7/2004	effective ba	2	4.1	374.5
20	BE	35.0	5.0	1.2	10/7/2004	effective ba	2	-0.5	250.0
20	BMpcpA	1.0	0.1	0.0	10/8/2004	effective ba	1	6.9	105.1
20	BMpcpJ	18.0	2.6	0.6	10/8/2004	effective ba	2	0.8	359.4
19	BCh	17.0	2.4	0.6	10/9/2004	effective ba	1	5.0	150.0
20	BMe	17.0	2.4	0.6	10/9/2004	effective ba	2	1.5	159.0

Row	Well	Travel time days	wks	mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm
21	BUpcpC	110	15	4	11/11/2003	effective basin	2	3.0	493.1
21	BUpcpD	110	15	4	11/11/2003	effective basin	2	1.5	228.1
21	BUpcpE	110	15	4	11/11/2003	effective basin	2	0.9	181.1
21	BUpcpF	110	15	4	11/11/2003	effective basin	2	0.2	173.4
21	BUpcpG	110	15	4	11/11/2003	effective basin	2	-0.4	172.0
21	BUpcpH	110	15	4	11/11/2003	effective basin	2	-1.0	451.5
20	BYpcpI	140.0	18.7	4.7	11/11/2003	effective basin	2	-1.8	133.5
7	AA	160.0	22.9	5.3	11/12/2003	rest area	1	8.4	192.0
20	BYpcpD	130.0	17.3	4.3	11/12/2003	effective basin	2	1.3	255.1
20	BYpcpE	130.0	17.3	4.3	11/12/2003	effective basin	2	0.7	205.4
20	BYpcpF	130.0	17.3	4.3	11/12/2003	effective basin	2	0.0	224.5
20	BYpcpG	130.0	17.3	4.3	11/12/2003	effective basin	2	-0.6	15.1
20	BYpcpH	130.0	17.3	4.3	11/12/2003	effective basin	2	-1.2	211.8
20	BYpcpJ	150.0	20.0	5.0	11/12/2003	effective basin	2	-3.3	234.9
8	CA	160.0	22.9	5.3	11/12/2003	rest area, near E BC	1	6.1	511.0
8	AB	35	5	1	11/13/2003	west of rest area, runoff slope	1	8.0	305.0
21	BE	35	5	1	11/13/2003	effective basin	2	-0.5	114.0
20	BTf	68.0	9.7	2.3	11/13/2003	effective basin	2	0.7	205.0
20	BTpcpK	80.0	11.4	2.7	11/13/2003	effective basin	2	-4.2	117.9
21	BUpcpI	120.0	16.0	4.0	11/13/2003	effective basin	2	-1.6	200.7
20	BYpcpA	120.0	17.1	4.0	11/13/2003	effective basin	1	5.8	254.5
20	BYpcpB	120.0	16.0	4.0	11/13/2003	effective basin	2	4.3	199.3
20	BYpcpC	120.0	16.0	4.0	11/13/2003	effective basin	2	2.8	202.1
20	BTpcpD	70.0	10.0	2.3	11/14/2003	effective basin	2	1.9	700.4
20	BTpcpE	70.0	10.0	2.3	11/14/2003	effective basin	2	1.3	524.0
20	BTpcpF	70.0	10.0	2.3	11/14/2003	effective basin	2	0.7	262.3
20	BTpcpG	70.0	10.0	2.3	11/14/2003	effective basin	2	0.1	296.5
20	BTpcpH	70.0	10.0	2.3	11/14/2003	effective basin	2	-0.5	215.0
20	BTpcpI	70.0	10.0	2.3	11/14/2003	effective basin	2	-1.1	1429.8
11	AK	240.0	34.3	8.0	11/16/2003	@ E BC, east of median 13 area	1	7.4	365.0
20	BMpcpJ	18.0	2.6	0.6	11/16/2003	effective basin	2	0.8	185.7
21	BTa	65.0	9.3	2.2	11/16/2003	effective basin	1	5.4	292.0
21	BTb	65.0	9.3	2.2	11/16/2003	effective basin	2	4.4	361.0
21	BTc	65.0	9.3	2.2	11/16/2003	effective basin	2	3.6	389.0
21	BTd	65.0	9.3	2.2	11/16/2003	effective basin	2	2.7	296.0
20	BTe	65.0	9.3	2.2	11/16/2003	effective basin	2	1.7	241.0
20	BYpcpI	140.0	18.7	4.7	11/16/2003	effective basin	2	-1.8	167.3
19	CB	240.0	34.3	8.0	11/16/2003	N of WB lane, near 4 UG wells across rd	1	8.6	500.0
9	AC	190.0	27.1	6.3	11/17/2003	b/tw areas 6/16, N of ramp, S of shoulder	1	8.2	155.0
21	BCpcpH	50.0	7.1	1.7	11/17/2003	effective basin	2	-0.8	4729.4
21	BCpcpI	50.0	7.1	1.7	11/17/2003	effective basin	2	-1.4	1787.3
21	BCpcpJ	50.0	7.1	1.7	11/17/2003	effective basin	2	-2.0	2281.5
20	BTpcpA	50.0	7.1	1.7	11/17/2003	effective basin	1	6.5	217.5
20	BTpcpB	50.0	7.1	1.7	11/17/2003	effective basin	2	5.0	260.0
18	AP	30	4	1	11/18/2003	effective basin	1	8.0	249.0
20	BCi	30	4	1	11/18/2003	effective basin	2	1.1	369.0
21	BCpcpC	30.0	4.3	1.0	11/18/2003	effective basin	2	4.1	168.3
22	BG	30	4	1	11/18/2003	effective basin	1	7.6	453.0
20	BTpcpJ	75.0	10.7	2.5	11/18/2003	effective basin	2	-2.6	533.4
21	BUpcpA	110	15	4	11/18/2003	effective basin	1	6.0	287.3
21	BUpcpB	110	15	4	11/18/2003	effective basin	2	4.5	488.4
21	BUpcpC	110	15	4	11/18/2003	effective basin	2	3.0	402.8
21	BUpcpD	110	15	4	11/18/2003	effective basin	2	1.5	513.0
21	BUpcpE	110	15	4	11/18/2003	effective basin	2	0.9	423.6
21	BUpcpF	110	15	4	11/18/2003	effective basin	2	0.2	169.9
21	BUpcpG	110	15	4	11/18/2003	effective basin	2	-0.4	178.5
21	BUpcpH	110	15	4	11/18/2003	effective basin	2	-1.0	166.4
20	BMpcpI	15.0	2.1	0.5	11/19/2003	effective basin	2	1.7	590.8
20	BTpcpK	80.0	11.4	2.7	11/20/2003	effective basin	2	-4.2	119.4
12	AG	130.0	18.6	4.3	11/21/2003	area 12 (south shoulder of EB lane)	1	7.3	2182.0
20	BMpcpH	13.0	1.9	0.4	11/21/2003	effective basin	2	2.3	675.2
20	BYpcpD	130.0	17.3	4.3	11/21/2003	effective basin	2	1.3	309.9
20	BYpcpE	130.0	17.3	4.3	11/21/2003	effective basin	2	0.7	196.7
20	BYpcpF	130.0	17.3	4.3	11/21/2003	effective basin	2	0.0	223.3
20	BYpcpG	130.0	17.3	4.3	11/21/2003	effective basin	2	-0.6	12.1
20	BYpcpH	130.0	17.3	4.3	11/21/2003	effective basin	2	-1.2	163.4
9	AD	150.0	21.4	5.0	11/22/2003	b/tw areas 6/16, N of ramp, S of shoulder	1	8.1	389.0
21	BUpcpI	120.0	16.0	4.0	11/22/2003	effective basin	2	-1.6	422.5
20	BYpcpA	120.0	17.1	4.0	11/22/2003	effective basin	1	5.8	384.2
20	BYpcpB	120.0	16.0	4.0	11/22/2003	effective basin	2	4.3	320.4

Row	Well	Travel time days	wks	mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm
18	BCf	15.0	2.1	0.5	10/11/2004	effective ba	1	6.8	91.0
20	BMpcpI	15.0	2.1	0.5	10/11/2004	effective ba	2	1.7	1349.7
9	BTg	70.0	10.0	2.3	10/11/2004	effective ba	2	-0.1	297.0
21	BTh	70.0	10.0	2.3	10/11/2004	effective ba	2	-1.0	306.0
20	BTpcpD	70.0	10.0	2.3	10/11/2004	effective ba	2	1.9	612.6
20	BTpcpE	70.0	10.0	2.3	10/11/2004	effective ba	2	1.3	449.9
20	BTpcpF	70.0	10.0	2.3	10/11/2004	effective ba	2	0.7	509.9
20	BTpcpH	70.0	10.0	2.3	10/11/2004	effective ba	2	-0.5	344.1
20	BTpcpI	70.0	10.0	2.3	10/11/2004	effective ba	2	-1.1	482.8
18	AP	30.0	4.3	1.0	10/12/2004	effective ba	1	8.0	197.0
22	BCi	30.0	4.3	1.0	10/12/2004	effective ba	2	1.1	230.0
21	BCpcpA	25.0	3.6	0.8	10/12/2004	effective ba	1	7.1	782.6
21	BCpcpB	25.0	3.6	0.8	10/12/2004	effective ba	1	5.6	145.1
21	BCpcpC	30.0	4.3	1.0	10/12/2004	effective ba	2	4.1	560.5
21	BCpcpD	40.0	5.7	1.3	10/12/2004	effective ba	2	2.6	754.3
21	BCpcpE	40.0	5.7	1.3	10/12/2004	effective ba	2	1.0	599.6
21	BCpcpF	40.0	5.7	1.3	10/12/2004	effective ba	2	0.4	570.4
21	BCpcpG	40.0	5.7	1.3	10/12/2004	effective ba	2	-0.2	999.9
20	BG	30.0	4.3	1.0	10/12/2004	N of WB la	1	7.6	243.0
20	BMpcpK	25.0	3.6	0.8	10/12/2004	effective ba	2	-0.7	307.8
20	BTpcpC	60.0	8.6	2.0	10/12/2004	effective ba	2	3.5	233.3
20	BMpcpH	13.0	1.9	0.4	10/13/2004	effective ba	2	2.3	835.4
22	BTf	68.0	9.7	2.3	10/13/2004	effective ba	2	0.7	280.0
20	BMc	11.0	1.6	0.4	10/15/2004	effective ba	2	3.0	352.0
20	BMpcpG	11.0	1.6	0.4	10/15/2004	effective ba	2	2.9	1166.8
20	BMd	10.0	1.4	0.3	10/16/2004	effective ba	2	2.1	185.0
21	BN	10.0	1.4	0.3	10/16/2004	effective ba	2	1.8	308.0
21	BTa	65.0	9.3	2.2	10/16/2004	effective ba	1	5.4	187.0
21	BTb	65.0	9.3	2.2	10/16/2004	effective ba	2	4.4	509.0
21	BTc	65.0	9.3	2.2	10/16/2004	effective ba	2	3.6	533.0
22	BTd	65.0	9.3	2.2	10/16/2004	effective ba	2	2.7	513.0
22	BTe	65.0	9.3	2.2	10/16/2004	effective ba	2	1.7	249.0
18	BCg	25.0	3.6	0.8	10/17/2004	effective ba	2	2.9	287.0
21	BCpcpA	25.0	3.6	0.8	10/17/2004	effective ba	1	7.1	697.9
21	BCpcpB	25.0	3.6	0.8	10/17/2004	effective ba	1	5.6	131.1
20	BMb	9.0	1.3	0.3	10/17/2004	effective ba	2	3.9	244.0
20	BMpcpF	9.0	1.3	0.3	10/17/2004	effective ba	2	3.6	978.9
20	BMpcpK	25.0	3.6	0.8	10/17/2004	effective ba	2	-0.7	480.3
20	BMpcpE	8.0	1.1	0.3	10/18/2004	effective ba	2	4.2	1359.6
20	BMa	7.0	1.0	0.2	10/19/2004	effective ba	1	4.8	341.0
20	BMpcpJ	18.0	2.6	0.6	10/19/2004	effective ba	2	0.8	424.9
20	ATpcpC	6.0	0.9	0.2	10/20/2004	effective ba	2	4.7	592.6
20	BMpcpD	6.0	0.9	0.2	10/20/2004	effective ba	2	4.8	1881.3
20	ATpcpB	5.0	0.7	0.2	10/21/2004	effective ba	1	5.3	3232.5
20	BMpcpC	5.0	0.7	0.2	10/21/2004	effective ba	1	5.4	808.1
20	BTpcpC	60.0	8.6	2.0	10/21/2004	effective ba	2	3.5	255.6
21	BCa	20.0	2.9	0.7	10/22/2004	effective ba	1	6.0	63.0
9	BCb	20.0	2.9	0.7	10/22/2004	effective ba	2	3.6	107.0
18	BCc	20.0	2.9	0.7	10/22/2004	effective ba	2	2.0	316.0
21	BCpcpC	30.0	4.3	1.0	10/22/2004	effective ba	2	4.1	752.5
21	BCpcpH	50.0	7.1	1.7	10/22/2004	effective ba	2	-0.8	317.8
21	BCpcpI	50.0	7.1	1.7	10/22/2004	effective ba	2	-1.4	267.6
21	BCpcpJ	50.0	7.1	1.7	10/22/2004	effective ba	2	-2.0	196.4
19	BD	20.0	2.9	0.7	10/22/2004	effective ba	1	5.6	125.0
20	BMpcpI	15.0	2.1	0.5	10/22/2004	effective ba	2	1.7	1147.1
20	BTpcpA	50.0	7.1	1.7	10/22/2004	effective ba	1	6.5	258.1
20	BTpcpB	50.0	7.1	1.7	10/22/2004	effective ba	2	5.0	187.1
20	ATpcpA	3.0	0.4	0.1	10/23/2004	effective ba	1	6.8	772.4
20	BMpcpB	3.0	0.4	0.1	10/23/2004	effective ba	1	6.0	161.6
20	AT	2.0	0.3	0.1	10/24/2004	effective ba	1	7.3	542.0
20	BMpcpH	13.0	1.9	0.4	10/24/2004	effective ba	2	2.3	577.9
20	BMpcpJ	18.0	2.6	0.6	10/24/2004	effective ba	2	0.8	412.8
19	BCh	17.0	2.4	0.6	10/25/2004	effective ba	1	5.0	99.0
20	BMe	17.0	2.4	0.6	10/25/2004	effective ba	2	1.5	263.0
20	BMpcpA	1.0	0.1	0.0	10/25/2004	effective ba	1	6.9	343.3
20	BMpcpG	11.0	1.6	0.4	10/26/2004	effective ba	2	2.9	772.5
18	BCf	15.0	2.1	0.5	10/27/2004	effective ba	1	6.8	68.0
21	BCpcpA	25.0	3.6	0.8	10/27/2004	effective ba	1	7.1	915.4
21	BCpcpB	25.0	3.6	0.8	10/27/2004	effective ba	1	5.6	107.8
20	BMpcpI	15.0	2.1	0.5	10/27/2004	effective ba	2	1.7	960.7

Row	Well	days	Travel time wks	mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm
20	BYpcpC	120.0	16.0	4.0	11/22/2003	effective basin	2	2.8	243.2
20	BYpcpI	140.0	18.7	4.7	11/22/2003	effective basin	2	-1.8	339.0
20	BYpcpJ	150	20	5	11/22/2003	effective basin	2	-3.3	296.4
20	BCg	25	4	1	11/23/2003	effective basin	2	2.9	283.0
21	BCpcpA	25.0	3.6	0.8	11/23/2003	effective basin	1	7.1	965.9
21	BCpcpB	25.0	3.6	0.8	11/23/2003	effective basin	1	5.6	288.9
20	BMpcpG	11.0	1.6	0.4	11/23/2003	effective basin	2	2.9	590.8
20	BMpcpK	25.0	3.6	0.8	11/23/2003	effective basin	2	-0.7	211.0
20	BTpcpD	70.0	10.0	2.3	11/23/2003	effective basin	2	1.9	1167.4
20	BTpcpE	70.0	10.0	2.3	11/23/2003	effective basin	2	1.3	1717.6
20	BTpcpF	70.0	10.0	2.3	11/23/2003	effective basin	2	0.7	455.0
20	BTpcpG	70.0	10.0	2.3	11/23/2003	effective basin	2	0.1	937.9
20	BTpcpH	70.0	10.0	2.3	11/23/2003	effective basin	2	-0.5	1373.8
20	BTpcpI	70.0	10.0	2.3	11/23/2003	effective basin	2	-1.1	804.3
21	BUpcpA	110.0	14.7	3.7	11/23/2003	effective basin	1	6.0	268.7
21	BUpcpB	110.0	14.7	3.7	11/23/2003	effective basin	2	4.5	465.0
21	BUpcpC	110.0	14.7	3.7	11/23/2003	effective basin	2	3.0	568.4
21	BUpcpD	110.0	14.7	3.7	11/23/2003	effective basin	2	1.5	676.3
21	BUpcpE	110.0	14.7	3.7	11/23/2003	effective basin	2	0.9	613.2
21	BUpcpF	110.0	14.7	3.7	11/23/2003	effective basin	2	0.2	183.9
21	BUpcpG	110.0	14.7	3.7	11/23/2003	effective basin	2	-0.4	183.5
21	BUpcpH	110.0	14.7	3.7	11/23/2003	effective basin	2	-1.0	152.5
20	BTpcpC	60.0	8.6	2.0	11/24/2003	effective basin	2	3.5	209.6
14	AN	210.0	30.0	7.0	11/25/2003	area 12 (south shoulder of EB lane)	1	8.0	757.0
20	BMpcpF	9.0	1.3	0.3	11/25/2003	effective basin	2	3.6	844.0
20	BTpcpJ	75.0	10.7	2.5	11/25/2003	effective basin	2	-2.6	760.7
13	AH	90.0	12.9	3.0	11/26/2003	area 12 (south shoulder of EB lane)	1	7.4	NS
20	BMpcpE	8.0	1.1	0.3	11/26/2003	effective basin	2	4.2	1097.2
20	BTj	90.0	12.9	3.0	11/26/2003	effective basin	2	-3.7	124.0
20	BYpcpD	130.0	17.3	4.3	11/26/2003	effective basin	2	1.3	541.3
20	BYpcpE	130.0	17.3	4.3	11/26/2003	effective basin	2	0.7	601.7
20	BYpcpF	130.0	17.3	4.3	11/26/2003	effective basin	2	0.0	522.6
20	BYpcpG	130.0	17.3	4.3	11/26/2003	effective basin	2	-0.6	15.5
20	BYpcpH	130.0	17.3	4.3	11/26/2003	effective basin	2	-1.2	265.8
21	BCpcpD	40.0	5.7	1.3	11/27/2003	effective basin	2	2.6	339.1
21	BCpcpE	40.0	5.7	1.3	11/27/2003	effective basin	2	1.0	4248.9
21	BCpcpF	40.0	5.7	1.3	11/27/2003	effective basin	2	0.4	5240.1
21	BCpcpG	40.0	5.7	1.3	11/27/2003	effective basin	2	-0.2	4106.7
20	ATpcpC	6.0	0.9	0.2	11/28/2003	effective basin	2	4.7	188.9
19	BCa	20	3	1	11/28/2003	effective basin	1	6.0	185.0
19	BCb	20	3	1	11/28/2003	effective basin	2	3.6	253.0
20	BCc	20	3	1	11/28/2003	effective basin	2	2.0	476.0
21	BD	20	3	1	11/28/2003	effective basin	1	5.6	146.0
20	BMpcpD	6.0	0.9	0.2	11/28/2003	effective basin	2	4.8	1645.8
20	BTpcpK	80.0	11.4	2.7	11/28/2003	effective basin	2	-4.2	169.6
20	ATpcpB	5.0	0.7	0.2	11/29/2003	effective basin	1	5.3	2172.1
20	BMpcpC	5.0	0.7	0.2	11/29/2003	effective basin	1	5.4	844.0
20	BMpcpJ	18.0	2.6	0.6	11/30/2003	effective basin	2	0.8	211.0
20	BTpcpD	70.0	10.0	2.3	11/30/2003	effective basin	2	1.9	1959.8
20	BTpcpE	70.0	10.0	2.3	11/30/2003	effective basin	2	1.3	2421.0
20	BTpcpF	70.0	10.0	2.3	11/30/2003	effective basin	2	0.7	1655.4
20	BTpcpG	70.0	10.0	2.3	11/30/2003	effective basin	2	0.1	2851.9
20	BTpcpH	70.0	10.0	2.3	11/30/2003	effective basin	2	-0.5	1241.5
20	BTpcpI	70.0	10.0	2.3	11/30/2003	effective basin	2	-1.1	1264.6
14	AF	120.0	17.1	4.0	12/1/2003	area 12 (south shoulder of EB lane)	1	7.3	1732.0
15	AO	50.0	7.1	1.7	12/1/2003	near BO cluster, not "effective" area	1	8.2	324.0
20	ATpcpA	3.0	0.4	0.1	12/1/2003	effective basin	1	6.8	246.4
20	BCh	17	2	1	12/1/2003	effective basin	1	5.0	209.0
20	BMe	17	2	1	12/1/2003	effective basin	2	1.5	139.0
20	BMpcpB	3.0	0.4	0.1	12/1/2003	effective basin	1	6.0	211.0
20	BTk	50.0	7.1	1.7	12/1/2003	effective basin	1	7.3	338.0
21	BUpcpI	120.0	16.0	4.0	12/1/2003	effective basin	2	-1.6	157.7
20	BYpcpA	120.0	17.1	4.0	12/1/2003	effective basin	1	5.8	262.2
20	BYpcpB	120.0	16.0	4.0	12/1/2003	effective basin	2	4.3	324.6
20	BYpcpC	120.0	16.0	4.0	12/1/2003	effective basin	2	2.8	254.0
21	BZ	120.0	17.1	4.0	12/1/2003	effective basin	1	6.7	301.0
21	BUpcpA	110.0	14.7	3.7	12/2/2003	effective basin	1	6.0	593.7
21	BUpcpB	110.0	14.7	3.7	12/2/2003	effective basin	2	4.5	396.3
21	BUpcpC	110.0	14.7	3.7	12/2/2003	effective basin	2	3.0	505.3

Row	Well	days	Travel time wks	mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm
20	BMpcpK	25.0	3.6	0.8	10/27/2004	effective ba	2	-0.7	27.5
20	BMpcpF	9.0	1.3	0.3	10/28/2004	effective ba	2	3.6	1028.7
20	BMpcpE	8.0	1.1	0.3	10/29/2004	effective ba	2	4.2	1144.7
20	BMpcpH	13.0	1.9	0.4	10/29/2004	effective ba	2	2.3	445.6
12	AJ	11.0	1.6	0.4	10/31/2004	crest of bas	1	8.0	NM
15	AO	50.0	7.1	1.7	10/31/2004	near BO ch	1	8.2	252.0
20	ATpcpC	6.0	0.9	0.2	10/31/2004	effective ba	2	4.7	428.0
21	BCpcpH	50.0	7.1	1.7	10/31/2004	effective ba	2	-0.8	286.8
21	BCpcpI	50.0	7.1	1.7	10/31/2004	effective ba	2	-1.4	241.4
21	BCpcpJ	50.0	7.1	1.7	10/31/2004	effective ba	2	-2.0	181.5
20	BMc	11.0	1.6	0.4	10/31/2004	effective ba	2	3.0	247.0
20	BMpcpD	6.0	0.9	0.2	10/31/2004	effective ba	2	4.8	913.8
20	BMpcpG	11.0	1.6	0.4	10/31/2004	effective ba	2	2.9	606.8
19	BTk	50.0	7.1	1.7	10/31/2004	effective ba	1	7.3	266.0
20	BTpcpA	50.0	7.1	1.7	10/31/2004	effective ba	1	6.5	309.0
20	BTpcpB	50.0	7.1	1.7	10/31/2004	effective ba	2	5.0	170.4
20	ATpcpB	5.0	0.7	0.2	11/1/2004	effective ba	1	5.3	2633.8
21	BCpcpD	40.0	5.7	1.3	11/1/2004	effective ba	2	2.6	761.4
21	BCpcpE	40.0	5.7	1.3	11/1/2004	effective ba	2	1.0	3568.5
21	BCpcpF	40.0	5.7	1.3	11/1/2004	effective ba	2	0.4	571.9
21	BCpcpG	40.0	5.7	1.3	11/1/2004	effective ba	2	-0.2	774.5
20	BMd	10.0	1.4	0.3	11/1/2004	effective ba	2	2.1	116.0
20	BMpcpC	5.0	0.7	0.2	11/1/2004	effective ba	1	5.4	802.5
21	BN	10.0	1.4	0.3	11/1/2004	effective ba	2	1.8	240.0
20	BMb	9.0	1.3	0.3	11/2/2004	effective ba	2	3.9	376.0
20	BMpcpF	9.0	1.3	0.3	11/2/2004	effective ba	2	3.6	823.5
20	ATpcpA	3.0	0.4	0.1	11/3/2004	effective ba	1	6.8	511.7
20	BMpcpB	3.0	0.4	0.1	11/3/2004	effective ba	1	6.0	209.6
20	BMpcpE	8.0	1.1	0.3	11/3/2004	effective ba	2	4.2	866.1
20	BMpcpJ	18.0	2.6	0.6	11/3/2004	effective ba	2	0.8	19.4
20	BMa	7.0	1.0	0.2	11/4/2004	effective ba	1	4.8	284.0
20	ATpcpC	6.0	0.9	0.2	11/5/2004	effective ba	2	4.7	266.9
20	BMpcpA	1.0	0.1	0.0	11/5/2004	effective ba	1	6.9	114.4
20	BMpcpD	6.0	0.9	0.2	11/5/2004	effective ba	2	4.8	1794.7
20	ATpcpB	5.0	0.7	0.2	11/6/2004	effective ba	1	5.3	2514.6
20	BMpcpC	5.0	0.7	0.2	11/6/2004	effective ba	1	5.4	1441.2
20	BMpcpI	15.0	2.1	0.5	11/6/2004	effective ba	2	1.7	289.6
20	ATpcpA	3.0	0.4	0.1	11/8/2004	effective ba	1	6.8	670.0
19	BCj	42.0	6.0	1.4	11/8/2004	effective ba	2	-0.2	199.0
20	BMpcpB	3.0	0.4	0.1	11/8/2004	effective ba	1	6.0	198.0
20	BMpcpH	13.0	1.9	0.4	11/8/2004	effective ba	2	2.3	17.2
20	AT	2.0	0.3	0.1	11/9/2004	effective ba	1	7.3	315.0
9	BCd	40.0	5.7	1.3	11/10/2004	effective ba	2	0.2	362.0
9	BCe	40.0	5.7	1.3	11/10/2004	effective ba	2	-1.6	304.0
21	BCpcpD	40.0	5.7	1.3	11/10/2004	effective ba	2	2.6	445.6
21	BCpcpE	40.0	5.7	1.3	11/10/2004	effective ba	2	1.0	731.1
21	BCpcpF	40.0	5.7	1.3	11/10/2004	effective ba	2	0.4	566.5
21	BCpcpG	40.0	5.7	1.3	11/10/2004	effective ba	2	-0.2	815.1
20	BMpcpA	1.0	0.1	0.0	11/10/2004	effective ba	1	6.9	167.5
20	BMpcpG	11.0	1.6	0.4	11/10/2004	effective ba	2	2.9	82.3
21	BCpcpC	30.0	4.3	1.0	11/11/2004	effective ba	2	4.1	271.3
20	BMpcpF	9.0	1.3	0.3	11/12/2004	effective ba	2	3.6	222.1
20	BMpcpE	8.0	1.1	0.3	11/13/2004	effective ba	2	4.2	190.8
8	AB	35.0	5.0	1.2	11/15/2004	west of rest	1	8.0	124.0
20	ATpcpC	6.0	0.9	0.2	11/15/2004	effective ba	2	4.7	268.8
20	BE	35.0	5.0	1.2	11/15/2004	effective ba	2	-0.5	185.0
20	BMpcpD	6.0	0.9	0.2	11/15/2004	effective ba	2	4.8	215.5
20	ATpcpB	5.0	0.7	0.2	11/16/2004	effective ba	1	5.3	2101.2
21	BCpcpA	25.0	3.6	0.8	11/16/2004	effective ba	1	7.1	850.7
21	BCpcpB	25.0	3.6	0.8	11/16/2004	effective ba	1	5.6	154.1
20	BMpcpC	5.0	0.7	0.2	11/16/2004	effective ba	1	5.4	139.8
20	BMpcpK	25.0	3.6	0.8	11/16/2004	effective ba	2	-0.7	155.9
20	ATpcpA	3.0	0.4	0.1	11/18/2004	effective ba	1	6.8	383.3
20	BMpcpB	3.0	0.4	0.1	11/18/2004	effective ba	1	6.0	43.1
18	AP	30.0	4.3	1.0	11/20/2004	effective ba	1	8.0	366.0
22	BCi	30.0	4.3	1.0	11/20/2004	effective ba	2	1.1	588.0
21	BCpcpC	30.0	4.3	1.0	11/20/2004	effective ba	2	4.1	333.4
20	BG	30.0	4.3	1.0	11/20/2004	N of WB la	1	7.6	601.0
20	BMpcpA	1.0	0.1	0.0	11/20/2004	effective ba	1	6.9	429.1

Row	Well	Travel time days	wks	mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm
21	BUpcpD	110.0	14.7	3.7	12/2/2003	effective basin	2	1.5	522.6
21	BUpcpE	110.0	14.7	3.7	12/2/2003	effective basin	2	0.9	858.4
21	BUpcpF	110.0	14.7	3.7	12/2/2003	effective basin	2	0.2	333.7
21	BUpcpG	110.0	14.7	3.7	12/2/2003	effective basin	2	-0.4	193.6
21	BUpcpH	110.0	14.7	3.7	12/2/2003	effective basin	2	-1.0	184.6
20	BYpcpD	130.0	17.3	4.3	12/2/2003	effective basin	2	1.3	228.0
20	BYpcpE	130.0	17.3	4.3	12/2/2003	effective basin	2	0.7	375.9
20	BYpcpF	130.0	17.3	4.3	12/2/2003	effective basin	2	0.0	428.1
20	BYpcpG	130.0	17.3	4.3	12/2/2003	effective basin	2	-0.6	15.3
20	BYpcpH	130.0	17.3	4.3	12/2/2003	effective basin	2	-1.2	368.9
20	BYpcpI	140	19	5	12/2/2003	effective basin	2	-1.8	203.6
20	BYpcpJ	150.0	20.0	5.0	12/2/2003	effective basin	2	-3.3	296.4
20	BCf	15	2	1	12/3/2003	effective basin	1	6.8	206.0
20	BMpcpA	1.0	0.1	0.0	12/3/2003	effective basin	1	6.9	156.1
20	BMpcpI	15.0	2.1	0.5	12/3/2003	effective basin	2	1.7	506.4
20	BTpcpC	60.0	8.6	2.0	12/3/2003	effective basin	2	3.5	241.8
20	BTpcpJ	75.0	10.7	2.5	12/3/2003	effective basin	2	-2.6	246.2
21	BCpcpH	50.0	7.1	1.7	12/4/2003	effective basin	2	-0.8	185.2
21	BCpcpI	50.0	7.1	1.7	12/4/2003	effective basin	2	-1.4	172.8
21	BCpcpJ	50.0	7.1	1.7	12/4/2003	effective basin	2	-2.0	177.8
20	BTpcpA	50.0	7.1	1.7	12/4/2003	effective basin	1	6.5	146.6
20	BTpcpB	50.0	7.1	1.7	12/4/2003	effective basin	2	5.0	153.5
10	AI	200.0	28.6	6.7	12/5/2003	b/tw areas 6/16, N of ramp, S of shoulder	1	8.1	242.0
20	BMpcpH	13.0	1.9	0.4	12/5/2003	effective basin	2	2.3	675.2
16	AS	80.0	11.4	2.7	12/6/2003	area 12 (south shoulder of EB lane)	1	7.4	NS
21	BUpcpI	120.0	16.0	4.0	12/6/2003	effective basin	2	-1.6	136.3
20	BYpcpA	120.0	17.1	4.0	12/6/2003	effective basin	1	5.8	326.5
20	BYpcpB	120.0	16.0	4.0	12/6/2003	effective basin	2	4.3	403.2
20	BYpcpC	120.0	16.0	4.0	12/6/2003	effective basin	2	2.8	323.8
12	AJ	11	2	0	12/7/2003	crest of basin, comes down slope	1	8.0	116.0
21	BCpcpC	30.0	4.3	1.0	12/7/2003	effective basin	2	4.1	2305.8
20	BMc	11	2	0	12/7/2003	effective basin	2	3.0	267.0
20	BMpcpG	11.0	1.6	0.4	12/7/2003	effective basin	2	2.9	759.6
19	BMd	10	1	0	12/8/2003	effective basin	2	2.1	482.0
19	BN	10	1	0	12/8/2003	effective basin	2	1.8	232.0
20	BTpcpD	70.0	10.0	2.3	12/8/2003	effective basin	2	1.9	869.0
20	BTpcpE	70.0	10.0	2.3	12/8/2003	effective basin	2	1.3	926.9
20	BTpcpF	70.0	10.0	2.3	12/8/2003	effective basin	2	0.7	770.5
20	BTpcpG	70.0	10.0	2.3	12/8/2003	effective basin	2	0.1	528.0
20	BTpcpH	70.0	10.0	2.3	12/8/2003	effective basin	2	-0.5	526.7
20	BTpcpI	70.0	10.0	2.3	12/8/2003	effective basin	2	-1.1	1219.6
21	BCj	42.0	6.0	1.4	12/9/2003	effective basin	2	-0.2	455.0
20	BMb	9	1	0	12/9/2003	effective basin	2	3.9	2087.0
20	BMpcpF	9.0	1.3	0.3	12/9/2003	effective basin	2	3.6	2954.1
20	BMpcpE	8.0	1.1	0.3	12/10/2003	effective basin	2	4.2	7174.2
20	BTpcpC	60.0	8.6	2.0	12/10/2003	effective basin	2	3.5	902.5
20	BCd	40.0	5.7	1.3	12/11/2003	effective basin	2	0.2	535.0
20	BCe	40.0	5.7	1.3	12/11/2003	effective basin	2	-1.6	155.0
19	BMa	7	1	0	12/11/2003	effective basin	1	4.8	248.0
20	BTpcpK	80	11	3	12/11/2003	effective basin	2	-4.2	132.4
21	BUpcpA	110.0	14.7	3.7	12/11/2003	effective basin	1	6.0	414.1
21	BUpcpB	110.0	14.7	3.7	12/11/2003	effective basin	2	4.5	596.2
21	BUpcpC	110.0	14.7	3.7	12/11/2003	effective basin	2	3.0	349.3
21	BUpcpD	110.0	14.7	3.7	12/11/2003	effective basin	2	1.5	371.8
21	BUpcpE	110.0	14.7	3.7	12/11/2003	effective basin	2	0.9	190.6
21	BUpcpF	110.0	14.7	3.7	12/11/2003	effective basin	2	0.2	190.1
21	BUpcpG	110.0	14.7	3.7	12/11/2003	effective basin	2	-0.4	181.5
21	BUpcpH	110.0	14.7	3.7	12/11/2003	effective basin	2	-1.0	157.3
20	BYpcpJ	150	20	5	12/11/2003	effective basin	2	-3.3	960.4
12	AG	130.0	18.6	4.3	12/12/2003	area 12 (south shoulder of EB lane)	1	7.3	448.0
20	ATpcpC	6.0	0.9	0.2	12/12/2003	effective basin	2	4.7	280.5
21	BCpcpA	25.0	3.6	0.8	12/12/2003	effective basin	1	7.1	372.8
21	BCpcpB	25.0	3.6	0.8	12/12/2003	effective basin	1	5.6	190.7
20	BMpcpD	6.0	0.9	0.2	12/12/2003	effective basin	2	4.8	10128.2
20	BMpcpK	25.0	3.6	0.8	12/12/2003	effective basin	2	-0.7	202.6
21	BUpcpI	120.0	16.0	4.0	12/12/2003	effective basin	2	-1.6	135.6
20	BYpcpA	120.0	17.1	4.0	12/12/2003	effective basin	1	5.8	375.1
20	BYpcpB	120.0	16.0	4.0	12/12/2003	effective basin	2	4.3	498.2
20	BYpcpC	120.0	16.0	4.0	12/12/2003	effective basin	2	2.8	483.0
20	BYpcpD	130	17	4	12/12/2003	effective basin	2	1.3	375.1

Row	Well	Travel time days	wks	mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm
20	BMpcpJ	18.0	2.6	0.6	11/23/2004	effective ba	2	0.8	336.6
18	BCg	25.0	3.6	0.8	11/25/2004	effective ba	2	2.9	241.0
21	BCpcpA	25.0	3.6	0.8	11/25/2004	effective ba	1	7.1	679.9
21	BCpcpB	25.0	3.6	0.8	11/25/2004	effective ba	1	5.6	284.0
20	BMpcpK	25.0	3.6	0.8	11/25/2004	effective ba	2	-0.7	245.9
20	BMpcpI	15.0	2.1	0.5	11/26/2004	effective ba	2	1.7	910.9
20	BMpcpH	13.0	1.9	0.4	11/28/2004	effective ba	2	2.3	693.4
21	BCa	20.0	2.9	0.7	11/30/2004	effective ba	1	6.0	128.0
9	BCb	20.0	2.9	0.7	11/30/2004	effective ba	2	3.6	165.0
18	BCc	20.0	2.9	0.7	11/30/2004	effective ba	2	2.0	205.0
19	BD	20.0	2.9	0.7	11/30/2004	effective ba	1	5.6	202.0
20	BMpcpG	11.0	1.6	0.4	11/30/2004	effective ba	2	2.9	417.0
20	BMpcpF	9.0	1.3	0.3	12/2/2004	effective ba	2	3.6	421.4
20	BMpcpJ	18.0	2.6	0.6	12/2/2004	effective ba	2	0.8	363.1
19	BCh	17.0	2.4	0.6	12/3/2004	effective ba	1	5.0	216.0
20	BMe	17.0	2.4	0.6	12/3/2004	effective ba	2	1.5	268.0
20	BMpcpE	8.0	1.1	0.3	12/3/2004	effective ba	2	4.2	302.0
20	ATpcpC	6.0	0.9	0.2	12/5/2004	effective ba	2	4.7	2984.1
18	BCf	15.0	2.1	0.5	12/5/2004	effective ba	1	6.8	164.0
20	BMpcpD	6.0	0.9	0.2	12/5/2004	effective ba	2	4.8	679.8
20	BMpcpI	15.0	2.1	0.5	12/5/2004	effective ba	2	1.7	1146.7
20	ATpcpB	5.0	0.7	0.2	12/6/2004	effective ba	1	5.3	2228.8
20	BMpcpC	5.0	0.7	0.2	12/6/2004	effective ba	1	5.4	515.4
20	BMpcpH	13.0	1.9	0.4	12/7/2004	effective ba	2	2.3	688.3
20	ATpcpA	3.0	0.4	0.1	12/8/2004	effective ba	1	6.8	322.7
20	BMpcpB	3.0	0.4	0.1	12/8/2004	effective ba	1	6.0	143.1
12	AJ	11.0	1.6	0.4	12/9/2004	crest of bas	1	8.0	183.0
20	BMc	11.0	1.6	0.4	12/9/2004	effective ba	2	3.0	176.0
20	BMpcpG	11.0	1.6	0.4	12/9/2004	effective ba	2	2.9	1106.2
20	BMd	10.0	1.4	0.3	12/10/2004	effective ba	2	2.1	259.0
20	BMpcpA	1.0	0.1	0.0	12/10/2004	effective ba	1	6.9	140.8
21	BN	10.0	1.4	0.3	12/10/2004	effective ba	2	1.8	319.0
20	BMb	9.0	1.3	0.3	12/11/2004	effective ba	2	3.9	323.0
20	BMpcpF	9.0	1.3	0.3	12/11/2004	effective ba	2	3.6	849.8
20	BMpcpE	8.0	1.1	0.3	12/12/2004	effective ba	2	4.2	506.1
20	BMa	7.0	1.0	0.2	12/13/2004	effective ba	1	4.8	286.0
20	ATpcpC	6.0	0.9	0.2	12/14/2004	effective ba	2	4.7	277.8
20	BMpcpD	6.0	0.9	0.2	12/14/2004	effective ba	2	4.8	835.4
20	ATpcpB	5.0	0.7	0.2	12/15/2004	effective ba	1	5.3	2328.4
20	BMpcpC	5.0	0.7	0.2	12/15/2004	effective ba	1	5.4	666.7
20	ATpcpA	3.0	0.4	0.1	12/17/2004	effective ba	1	6.8	432.7
20	BMpcpB	3.0	0.4	0.1	12/17/2004	effective ba	1	6.0	164.7
20	AT	2.0	0.3	0.1	12/18/2004	effective ba	1	7.3	339.0
20	BMpcpA	1.0	0.1	0.0	12/19/2004	effective ba	1	6.9	105.1

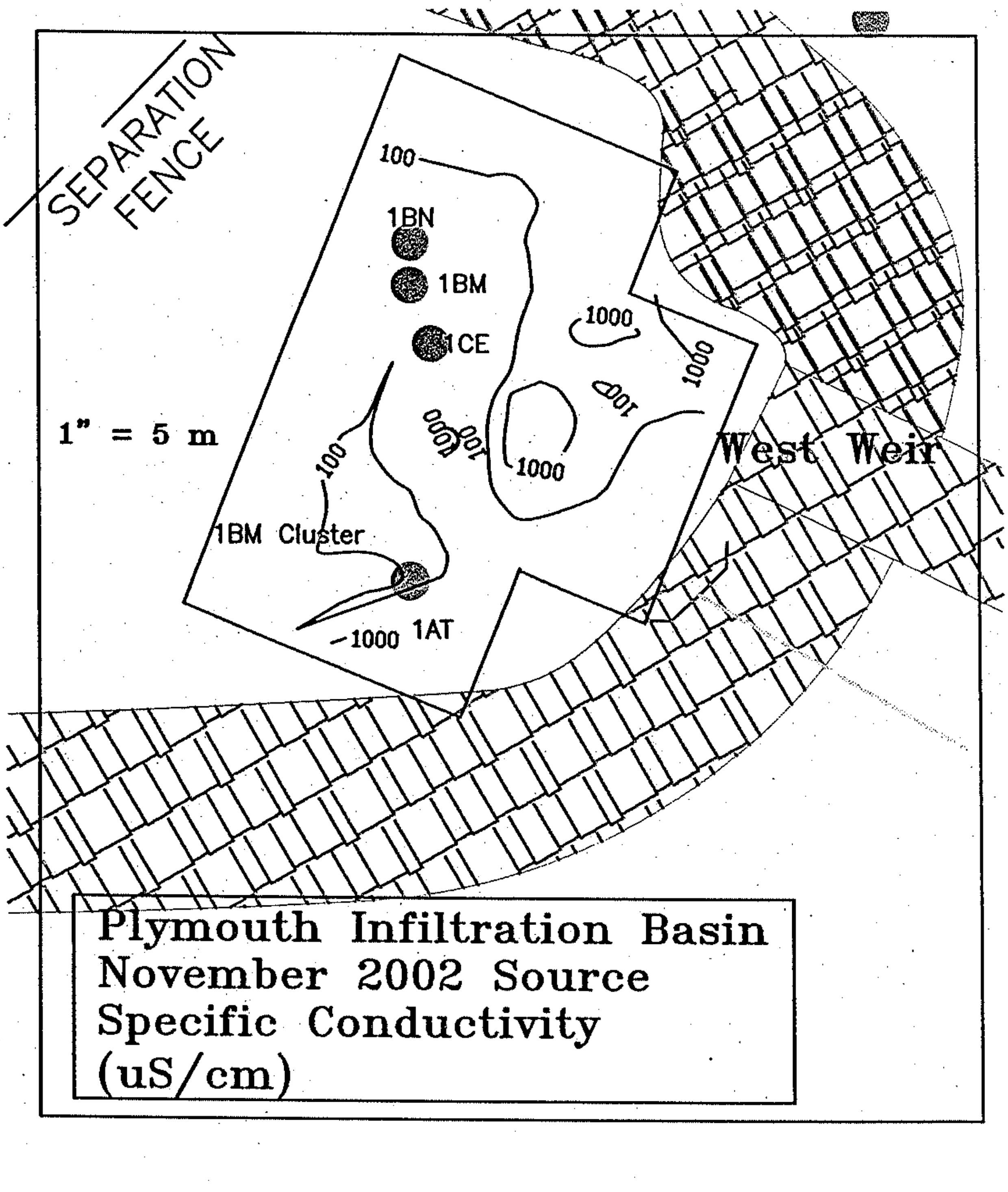
Row	Well	days	Travel time wks	mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm
20	BYpcpE	130	17	4	12/12/2003	effective basin	2	0.7	473.2
20	BYpcpF	130	17	4	12/12/2003	effective basin	2	0.0	266.0
20	BYpcpG	130	17	4	12/12/2003	effective basin	2	-0.6	89.7
20	BYpcpH	130	17	4	12/12/2003	effective basin	2	-1.2	1107.0
20	BYpcpI	140.0	18.7	4.7	12/12/2003	effective basin	2	-1.8	203.6
20	ATpcpB	5.0	0.7	0.2	12/13/2003	effective basin	1	5.3	2167.0
21	BCpcpH	50.0	7.1	1.7	12/13/2003	effective basin	2	-0.8	1105.0
21	BCpcpI	50.0	7.1	1.7	12/13/2003	effective basin	2	-1.4	834.1
21	BCpcpJ	50.0	7.1	1.7	12/13/2003	effective basin	2	-2.0	142.2
20	BMpcpC	5.0	0.7	0.2	12/13/2003	effective basin	1	5.4	3376.1
20	BTpcpA	50.0	7.1	1.7	12/13/2003	effective basin	1	6.5	178.4
20	BTpcpB	50.0	7.1	1.7	12/13/2003	effective basin	2	5.0	159.4
21	BCpcpD	40.0	5.7	1.3	12/14/2003	effective basin	2	2.6	4085.9
21	BCpcpE	40.0	5.7	1.3	12/14/2003	effective basin	2	1.0	1513.8
21	BCpcpF	40.0	5.7	1.3	12/14/2003	effective basin	2	0.4	609.9
21	BCpcpG	40.0	5.7	1.3	12/14/2003	effective basin	2	-0.2	1028.7
9	AC	190.0	27.1	6.3	12/15/2003	b/tw areas 6/16, N of ramp, S of shoulder	1	8.2	353.0
20	ATpcpA	3.0	0.4	0.1	12/15/2003	effective basin	1	6.8	257.6
20	BMpcpB	3.0	0.4	0.1	12/15/2003	effective basin	1	6.0	3291.7
8	AB	35.0	5.0	1.2	12/16/2003	west of rest area, runoff slope	1	8.0	NS
11	AK	240.0	34.3	8.0	12/16/2003	@ E BC, east of median 13 area	1	7.4	379.0
14	AN	210.0	30.0	7.0	12/16/2003	area 12 (south shoulder of EB lane)	1	8.0	602.0
20	AT	2	0	0	12/16/2003	effective basin	1	7.3	1005.0
21	BE	35.0	5.0	1.2	12/16/2003	effective basin	2	-0.5	1398.0
20	BTg	70.0	10.0	2.3	12/16/2003	effective basin	2	-0.1	597.0
20	BTh	70.0	10.0	2.3	12/16/2003	effective basin	2	-1.0	180.0
20	BTpcpJ	75	11	3	12/16/2003	effective basin	2	-2.6	270.9
21	BUpcpA	110.0	14.7	3.7	12/16/2003	effective basin	1	6.0	104.5
21	BUpcpB	110.0	14.7	3.7	12/16/2003	effective basin	2	4.5	5376.4
21	BUpcpC	110.0	14.7	3.7	12/16/2003	effective basin	2	3.0	71.2
21	BUpcpD	110.0	14.7	3.7	12/16/2003	effective basin	2	1.5	827.9
21	BUpcpE	110.0	14.7	3.7	12/16/2003	effective basin	2	0.9	177.3
21	BUpcpF	110.0	14.7	3.7	12/16/2003	effective basin	2	0.2	172.1
21	BUpcpG	110.0	14.7	3.7	12/16/2003	effective basin	2	-0.4	148.3
21	BUpcpH	110.0	14.7	3.7	12/16/2003	effective basin	2	-1.0	145.2
19	CB	240.0	34.3	8.0	12/16/2003	N of WB lane, near 4 UG wells across rd	1	8.6	537.0
7	AA	160.0	22.9	5.3	12/17/2003	rest area	1	8.4	NM
22	AQ	330.0	47.1	11.0	12/17/2003	N of WB lane, near 4 UG wells across rd	1	8.2	NM
20	BMpcpA	1.0	0.1	0.0	12/17/2003	effective basin	1	6.9	1519.2
8	CA	160.0	22.9	5.3	12/17/2003	rest area, near E BC	1	6.1	415.7
20	BTf	68.0	9.7	2.3	12/18/2003	effective basin	2	0.7	619.0
20	BTpcpC	60.0	8.6	2.0	12/18/2003	effective basin	2	3.5	2417.6
20	BTpcpK	80	11	3	12/18/2003	effective basin	2	-4.2	136.5
20	BYpcpJ	150.0	20.0	5.0	12/18/2003	effective basin	2	-3.3	1740.9
20	BMpcpJ	18.0	2.6	0.6	12/19/2003	effective basin	2	0.8	168.8
21	BCpcpH	50.0	7.1	1.7	12/20/2003	effective basin	2	-0.8	260.1
21	BCpcpI	50.0	7.1	1.7	12/20/2003	effective basin	2	-1.4	111.8
21	BCpcpJ	50.0	7.1	1.7	12/20/2003	effective basin	2	-2.0	117.0
20	BTpcpA	50.0	7.1	1.7	12/20/2003	effective basin	1	6.5	113.5
20	BTpcpB	50.0	7.1	1.7	12/20/2003	effective basin	2	5.0	147.5
18	AP	30.0	4.3	1.0	12/21/2003	effective basin	1	8.0	346.0
20	BCi	30.0	4.3	1.0	12/21/2003	effective basin	2	1.1	1125.0
22	BG	30.0	4.3	1.0	12/21/2003	effective basin	1	7.6	479.0
21	BTa	65.0	9.3	2.2	12/21/2003	effective basin	1	5.4	471.0
21	BTb	65.0	9.3	2.2	12/21/2003	effective basin	2	4.4	2207.0
21	BTc	65.0	9.3	2.2	12/21/2003	effective basin	2	3.6	1872.0
21	BTd	65.0	9.3	2.2	12/21/2003	effective basin	2	2.7	2614.0
20	BTe	65.0	9.3	2.2	12/21/2003	effective basin	2	1.7	1090.0
20	BTpcpD	70	10	2	12/21/2003	effective basin	2	1.9	3041.5
20	BTpcpE	70	10	2	12/21/2003	effective basin	2	1.3	2323.6
20	BTpcpF	70	10	2	12/21/2003	effective basin	2	0.7	5778.9
20	BTpcpG	70	10	2	12/21/2003	effective basin	2	0.1	663.9
20	BTpcpH	70	10	2	12/21/2003	effective basin	2	-0.5	662.2
20	BTpcpI	70	10	2	12/21/2003	effective basin	2	-1.1	331.1
20	BYpcpI	140	19	5	12/21/2003	effective basin	2	-1.8	850.0
14	AF	120.0	17.1	4.0	12/22/2003	area 12 (south shoulder of EB lane)	1	7.3	1596.0
20	BMpcpI	15.0	2.1	0.5	12/22/2003	effective basin	2	1.7	506.4
21	BUpcpA	110.0	14.7	3.7	12/22/2003	effective basin	1	6.0	579.7
21	BUpcpB	110.0	14.7	3.7	12/22/2003	effective basin	2	4.5	298.9
21	BUpcpC	110.0	14.7	3.7	12/22/2003	effective basin	2	3.0	193.2

Row	Well	days	Travel time wks	mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm

Row	Well	Travel time days	wks	mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm
21	BUpcpD	110.0	14.7	3.7	12/22/2003	effective basin	2	1.5	196.3
21	BUpcpE	110.0	14.7	3.7	12/22/2003	effective basin	2	0.9	194.2
21	BUpcpF	110.0	14.7	3.7	12/22/2003	effective basin	2	0.2	177.3
21	BUpcpG	110.0	14.7	3.7	12/22/2003	effective basin	2	-0.4	187.0
21	BUpcpH	110.0	14.7	3.7	12/22/2003	effective basin	2	-1.0	156.8
21	BUpcpI	120	16	4	12/22/2003	effective basin	2	-1.6	279.6
20	BYpcpA	120	17	4	12/22/2003	effective basin	1	5.8	735.0
20	BYpcpB	120	16	4	12/22/2003	effective basin	2	4.3	2107.9
20	BYpcpC	120	16	4	12/22/2003	effective basin	2	2.8	409.2
20	BYpcpD	130.0	17.3	4.3	12/22/2003	effective basin	2	1.3	375.1
20	BYpcpE	130.0	17.3	4.3	12/22/2003	effective basin	2	0.7	473.2
20	BYpcpF	130.0	17.3	4.3	12/22/2003	effective basin	2	0.0	266.0
20	BYpcpG	130.0	17.3	4.3	12/22/2003	effective basin	2	-0.6	89.7
20	BYpcpH	130.0	17.3	4.3	12/22/2003	effective basin	2	-1.2	1107.0
21	BZ	120.0	17.1	4.0	12/22/2003	effective basin	1	6.7	471.0
21	BCpcpD	40.0	5.7	1.3	12/23/2003	effective basin	2	2.6	3502.2
21	BCpcpE	40.0	5.7	1.3	12/23/2003	effective basin	2	1.0	2532.7
21	BCpcpF	40.0	5.7	1.3	12/23/2003	effective basin	2	0.4	1516.8
21	BCpcpG	40.0	5.7	1.3	12/23/2003	effective basin	2	-0.2	1210.2
20	BTpcpJ	75	11	3	12/23/2003	effective basin	2	-2.6	254.8
20	BTpcpK	80.0	11.4	2.7	12/23/2003	effective basin	2	-4.2	119.2
21	BCpcpC	30.0	4.3	1.0	12/24/2003	effective basin	2	4.1	2678.3
20	BMpcpH	13.0	1.9	0.4	12/24/2003	effective basin	2	2.3	590.8
10	AI	200.0	28.6	6.7	12/26/2003	b/tw areas 6/16, N of ramp, S of shoulder	1	8.1	270.0
20	BCg	25.0	3.6	0.8	12/26/2003	effective basin	2	2.9	2844.0
20	BMpcpG	11.0	1.6	0.4	12/26/2003	effective basin	2	2.9	506.4
9	AD	150.0	21.4	5.0	12/27/2003	b/tw areas 6/16, N of ramp, S of shoulder	1	8.1	387.5
20	BYpcpJ	150.0	20.0	5.0	12/27/2003	effective basin	2	-3.3	4406.8
21	BCpcpH	50.0	7.1	1.7	12/28/2003	effective basin	2	-0.8	3803.7
21	BCpcpI	50.0	7.1	1.7	12/28/2003	effective basin	2	-1.4	5517.3
21	BCpcpJ	50.0	7.1	1.7	12/28/2003	effective basin	2	-2.0	115.9
20	BMpcpF	9.0	1.3	0.3	12/28/2003	effective basin	2	3.6	928.4
20	BTpcpA	50.0	7.1	1.7	12/28/2003	effective basin	1	6.5	63.2
20	BTpcpB	50.0	7.1	1.7	12/28/2003	effective basin	2	5.0	150.8
20	BTpcpD	70	10	2	12/28/2003	effective basin	2	1.9	633.7
20	BTpcpE	70	10	2	12/28/2003	effective basin	2	1.3	1240.5
20	BTpcpF	70	10	2	12/28/2003	effective basin	2	0.7	758.4
20	BTpcpG	70	10	2	12/28/2003	effective basin	2	0.1	484.1
20	BTpcpH	70	10	2	12/28/2003	effective basin	2	-0.5	260.2
20	BTpcpI	70	10	2	12/28/2003	effective basin	2	-1.1	284.4
20	BTpcpJ	75.0	10.7	2.5	12/28/2003	effective basin	2	-2.6	212.9
20	BYpcpI	140.0	18.7	4.7	12/28/2003	effective basin	2	-1.8	484.5
21	BCpcpA	25.0	3.6	0.8	12/29/2003	effective basin	1	7.1	466.4
21	BCpcpB	25.0	3.6	0.8	12/29/2003	effective basin	1	5.6	4213.8
20	BMpcpE	8.0	1.1	0.3	12/29/2003	effective basin	2	4.2	13504.3
20	BMpcpK	25.0	3.6	0.8	12/29/2003	effective basin	2	-0.7	253.2
21	BCpcpD	40.0	5.7	1.3	12/30/2003	effective basin	2	2.6	3458.5
21	BCpcpE	40.0	5.7	1.3	12/30/2003	effective basin	2	1.0	864.6
21	BCpcpF	40.0	5.7	1.3	12/30/2003	effective basin	2	0.4	331.1
21	BCpcpG	40.0	5.7	1.3	12/30/2003	effective basin	2	-0.2	870.6
13	AH	90.0	12.9	3.0	12/31/2003	area 12 (south shoulder of EB lane)	1	7.4	1526.0
20	ATpcpC	6.0	0.9	0.2	12/31/2003	effective basin	2	4.7	213.7
19	BCa	20.0	2.9	0.7	12/31/2003	effective basin	1	6.0	2220.0
19	BCb	20.0	2.9	0.7	12/31/2003	effective basin	2	3.6	2662.0
20	BCc	20.0	2.9	0.7	12/31/2003	effective basin	2	2.0	2330.0
21	BD	20.0	2.9	0.7	12/31/2003	effective basin	1	5.6	2406.0
20	BMpcpD	6.0	0.9	0.2	12/31/2003	effective basin	2	4.8	17724.4
20	BTj	90.0	12.9	3.0	12/31/2003	effective basin	2	-3.7	372.0
20	BTpcpC	60	9	2	12/31/2003	effective basin	2	3.5	2280.8
20	BYpcpD	130	17	4	12/31/2003	effective basin	2	1.3	379.6
20	BYpcpE	130	17	4	12/31/2003	effective basin	2	0.7	1107.5
20	BYpcpF	130	17	4	12/31/2003	effective basin	2	0.0	839.5
20	BYpcpG	130	17	4	12/31/2003	effective basin	2	-0.6	46.1
20	BYpcpH	130	17	4	12/31/2003	effective basin	2	-1.2	676.0

Row	Well	Travel time days	wks	mos	origin date	Origin	Layer #	Sampling d m above msl	SpecCond uS/cm

APPENDIX H
Specific Conductivity Source Isopleths, November 2002 – May 2004


SEPARATION FENCE
1" = 5 m
100
1BN
1BM
1CE
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1000
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1000
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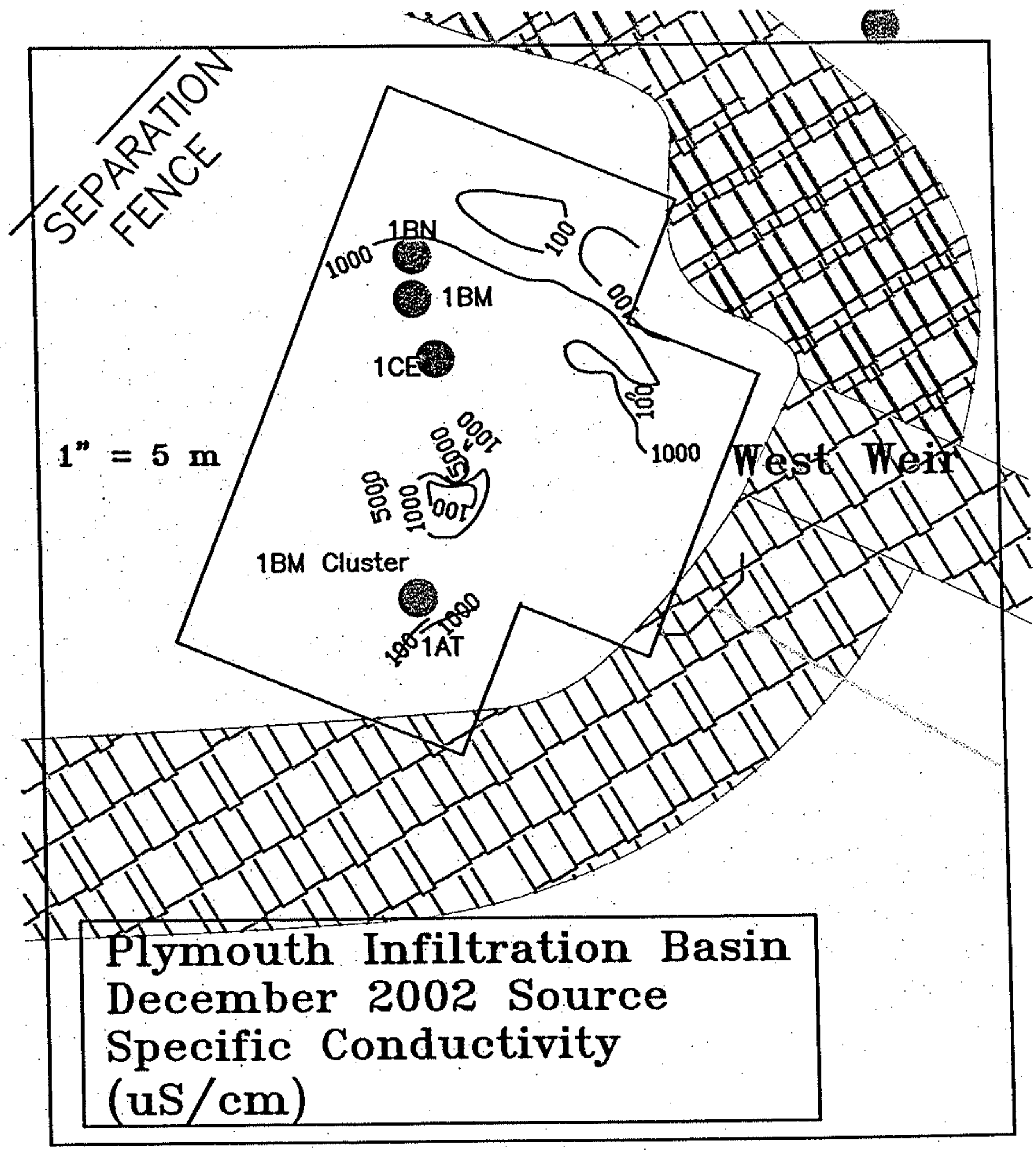
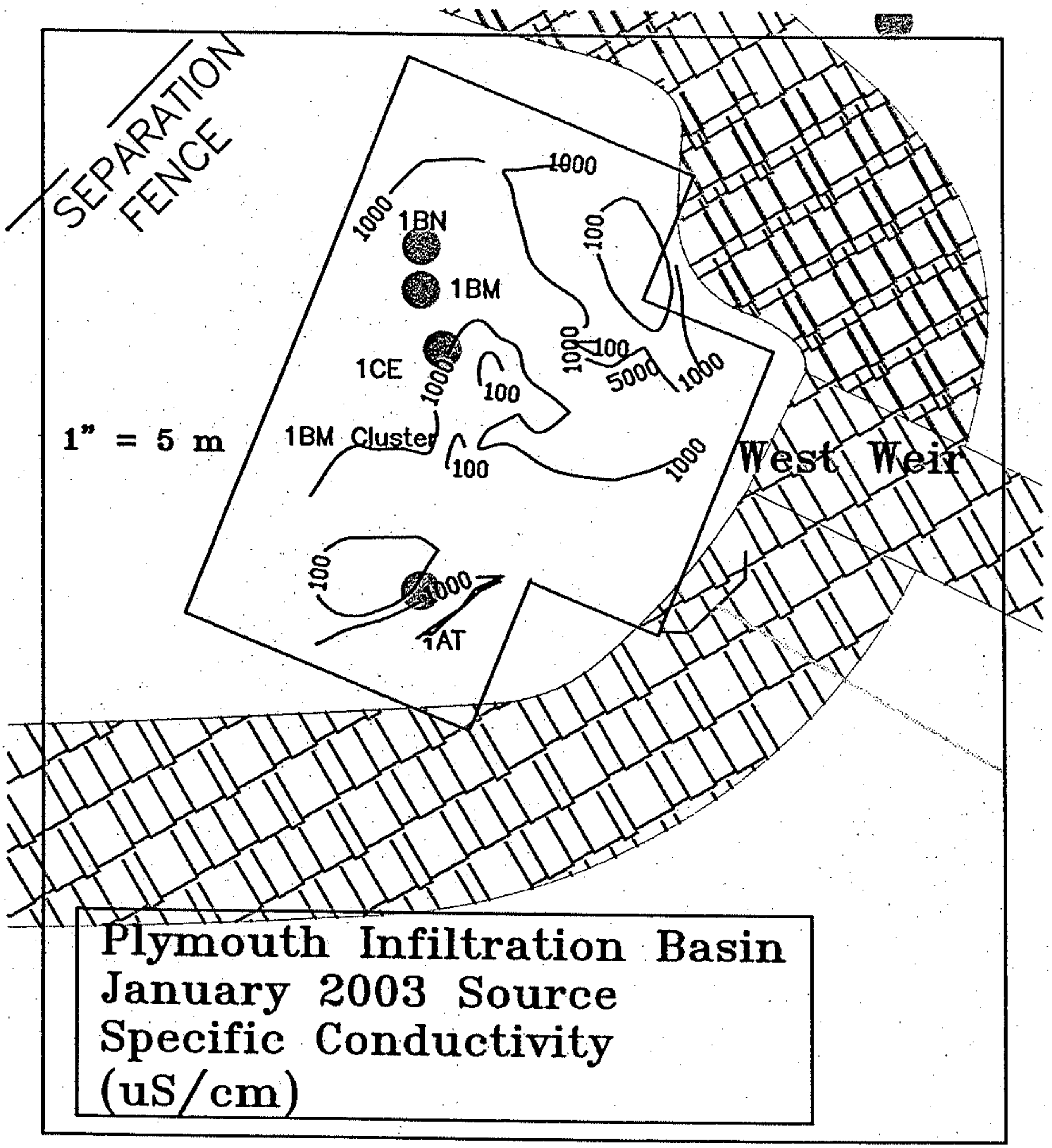
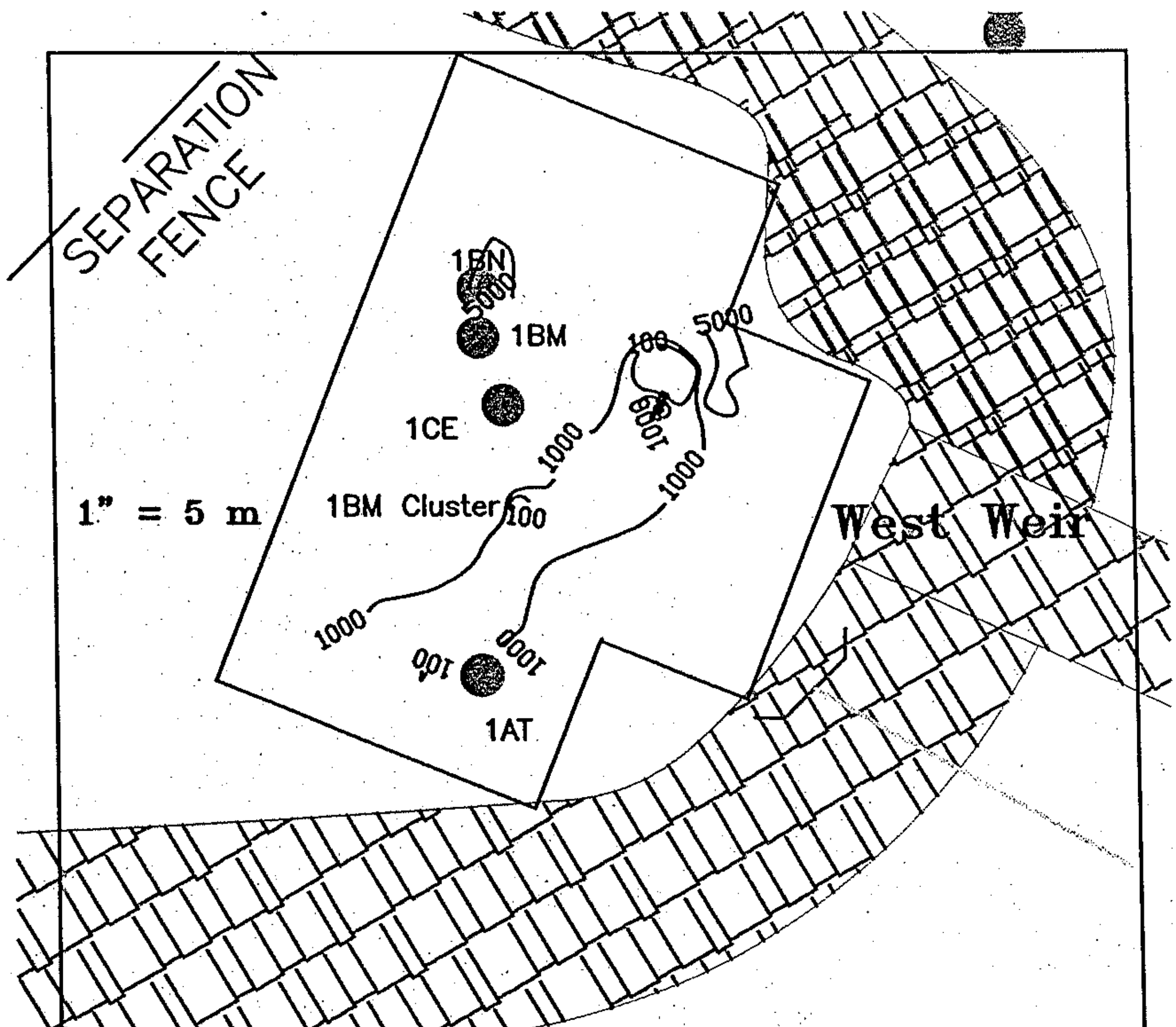
100
1000
West Weir
1BM Cluster
1000
1AT
Plymouth Infiltration Basin
November 2002 Source
Specific Conductivity
(uS/cm)



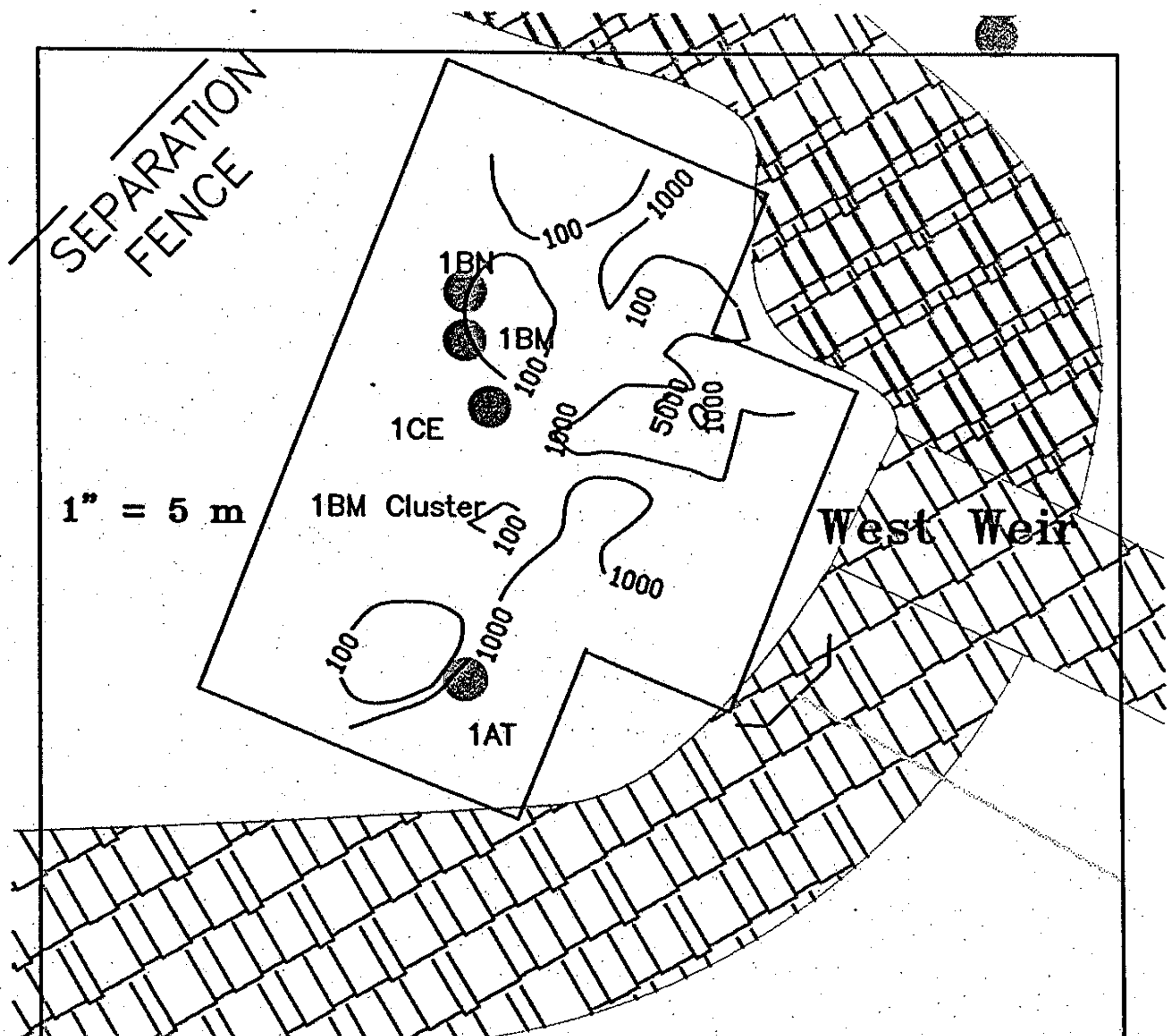
Plymouth Infiltration Basin
December 2002 Source
Specific Conductivity
(uS/cm)



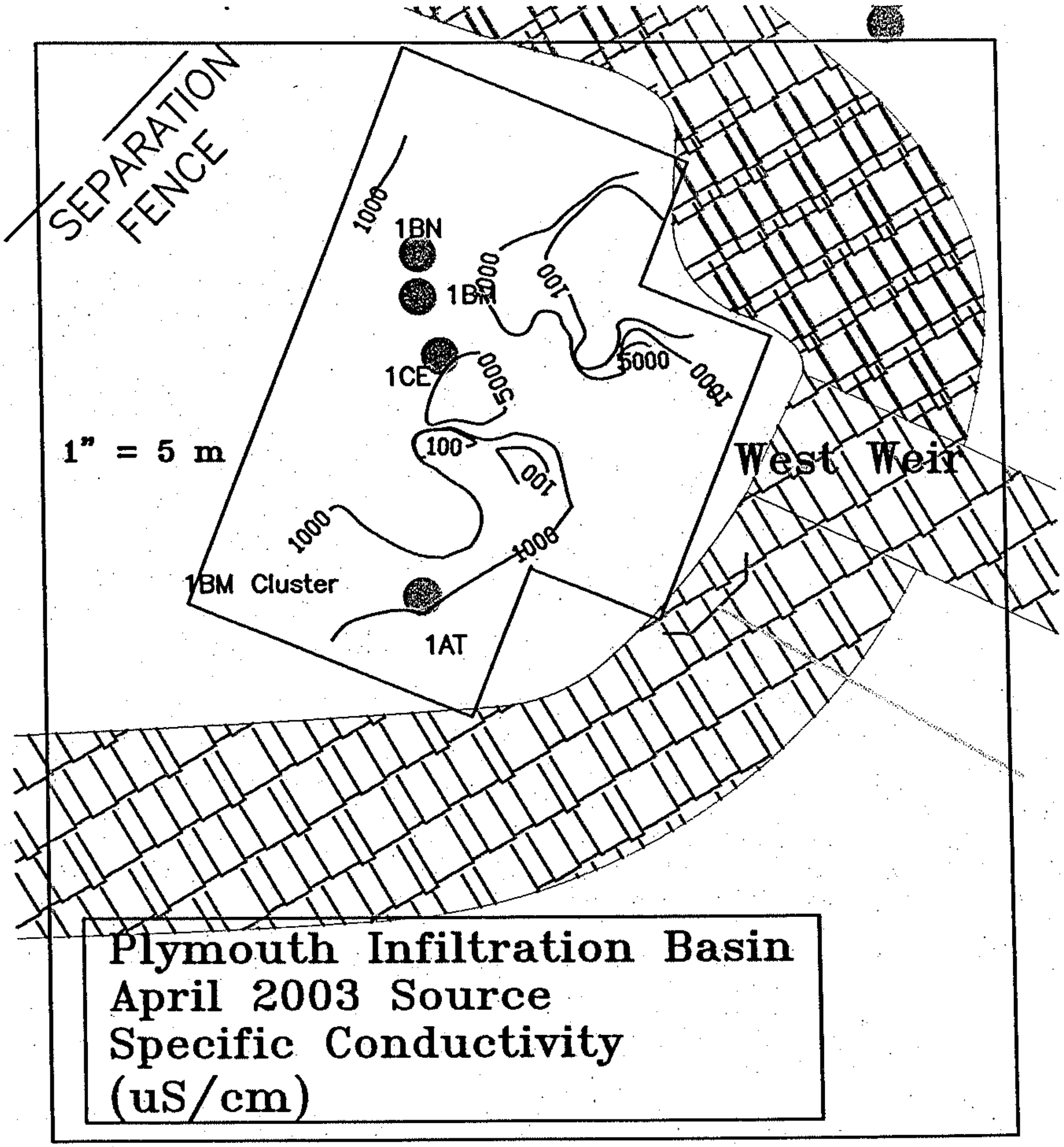
Plymouth Infiltration Basin
January 2003 Source
Specific Conductivity
(uS/cm)



Plymouth Infiltration Basin
February 2003 Source
Specific Conductivity
(uS/cm)



Plymouth Infiltration Basin
March 2003 Source
Specific Conductivity
(uS/cm)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1CE
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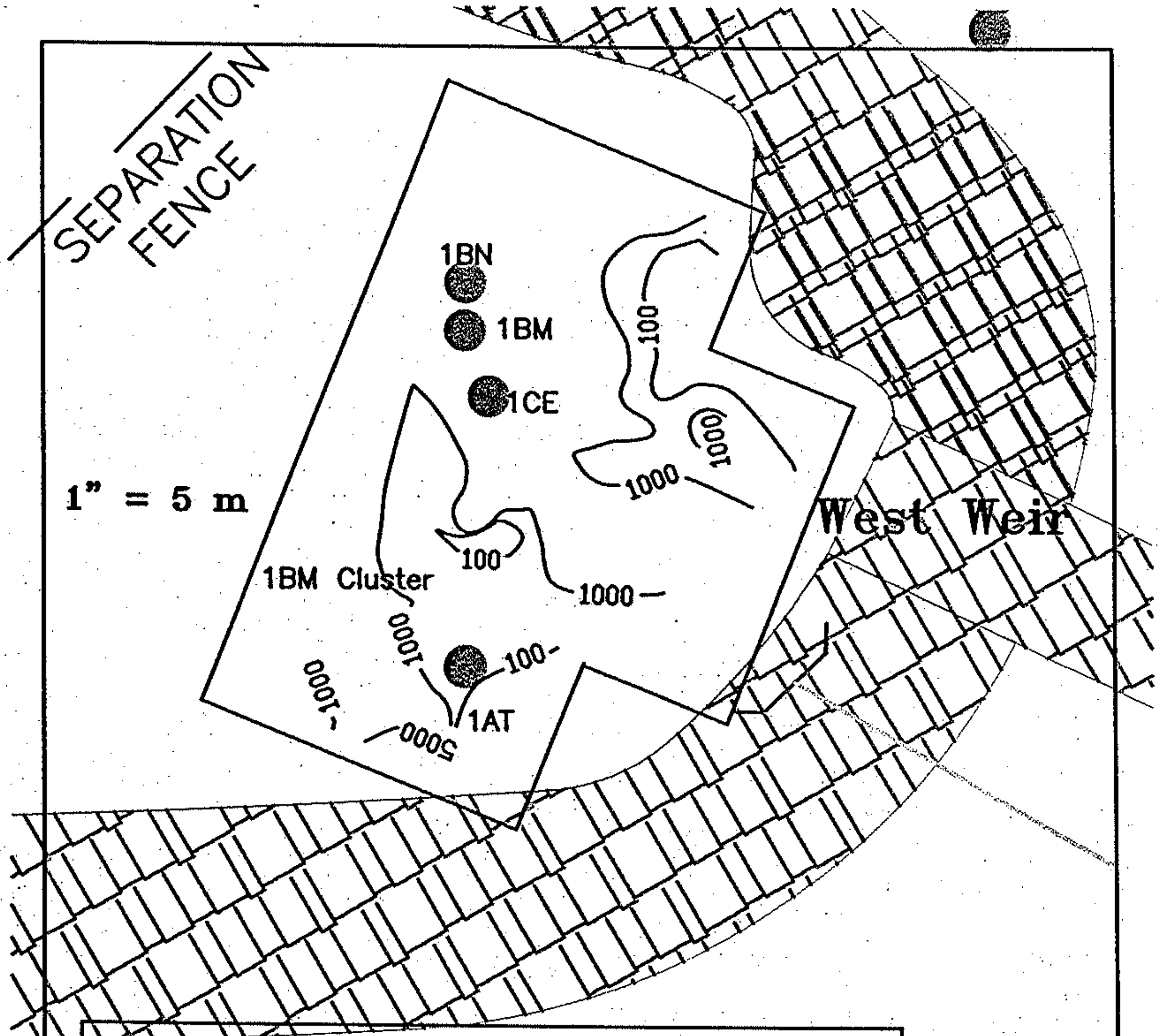
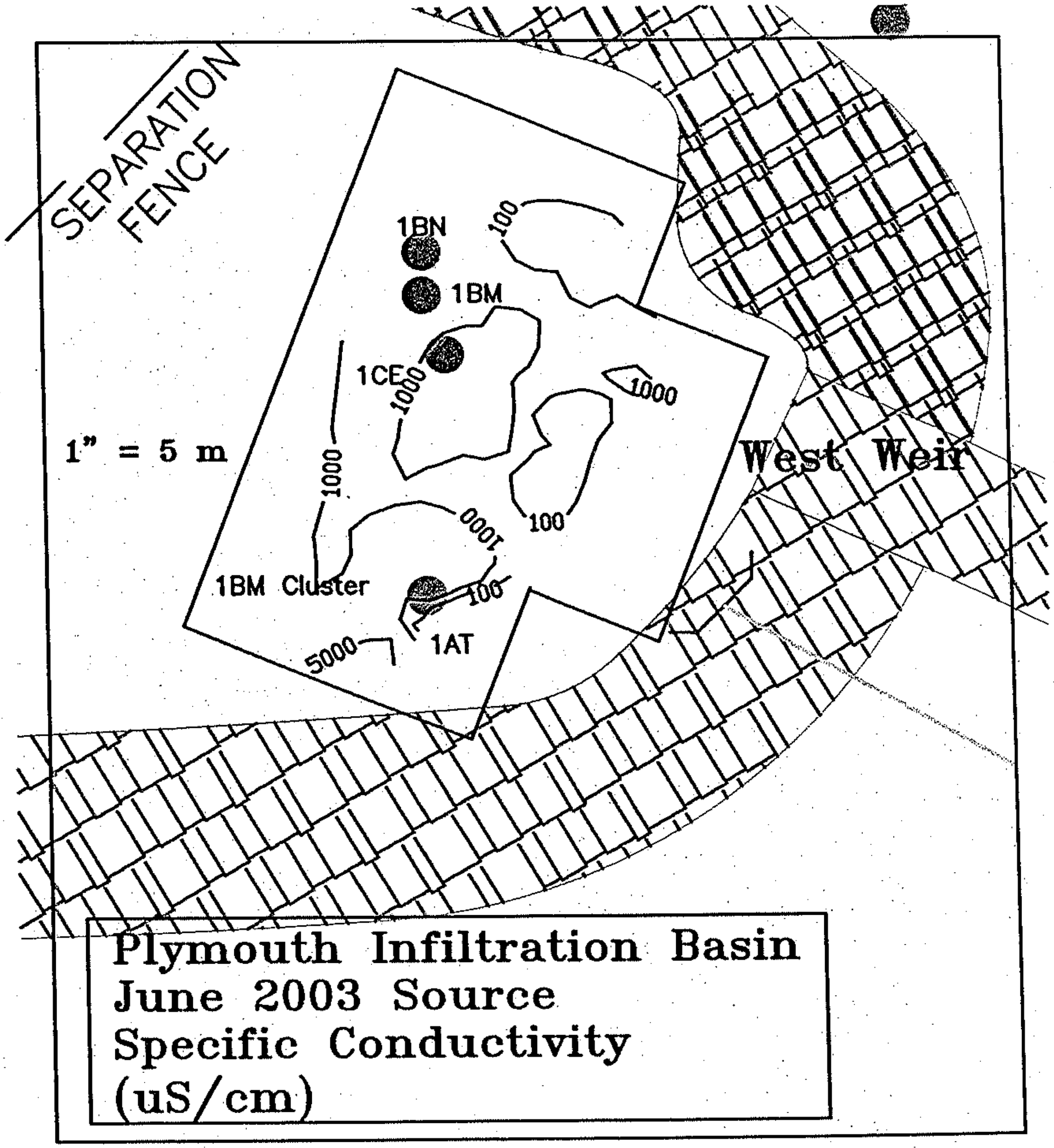
100
1000
1BM Cluster
1AT
West Weir
Plymouth Infiltration Basin
April 2003 Source
Specific Conductivity
(uS/cm)



Plymouth Infiltration Basin
May 2003 Source
Specific Conductivity
(uS/cm)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1BM
1CE
1" = 5 m
West Weir
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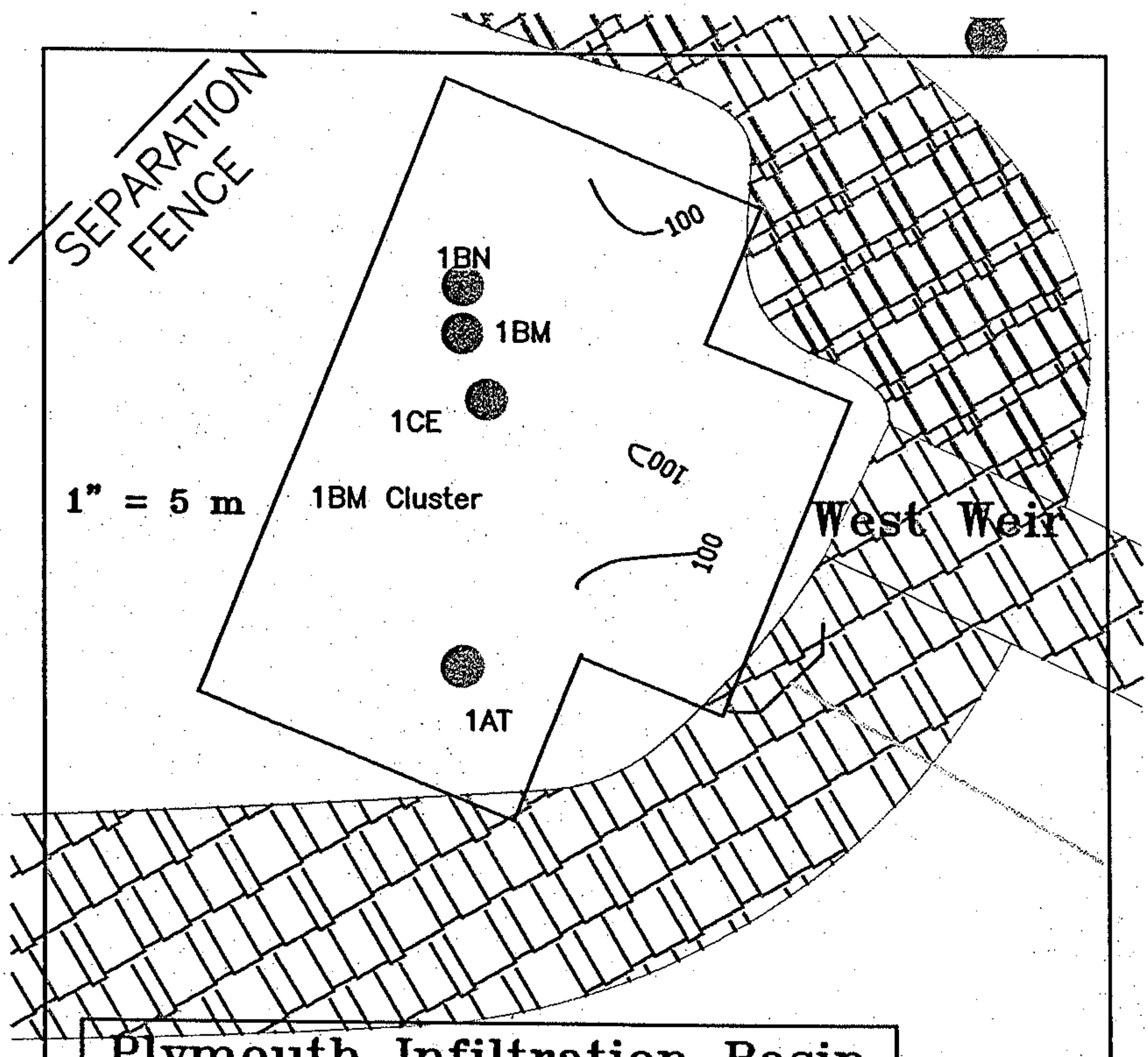
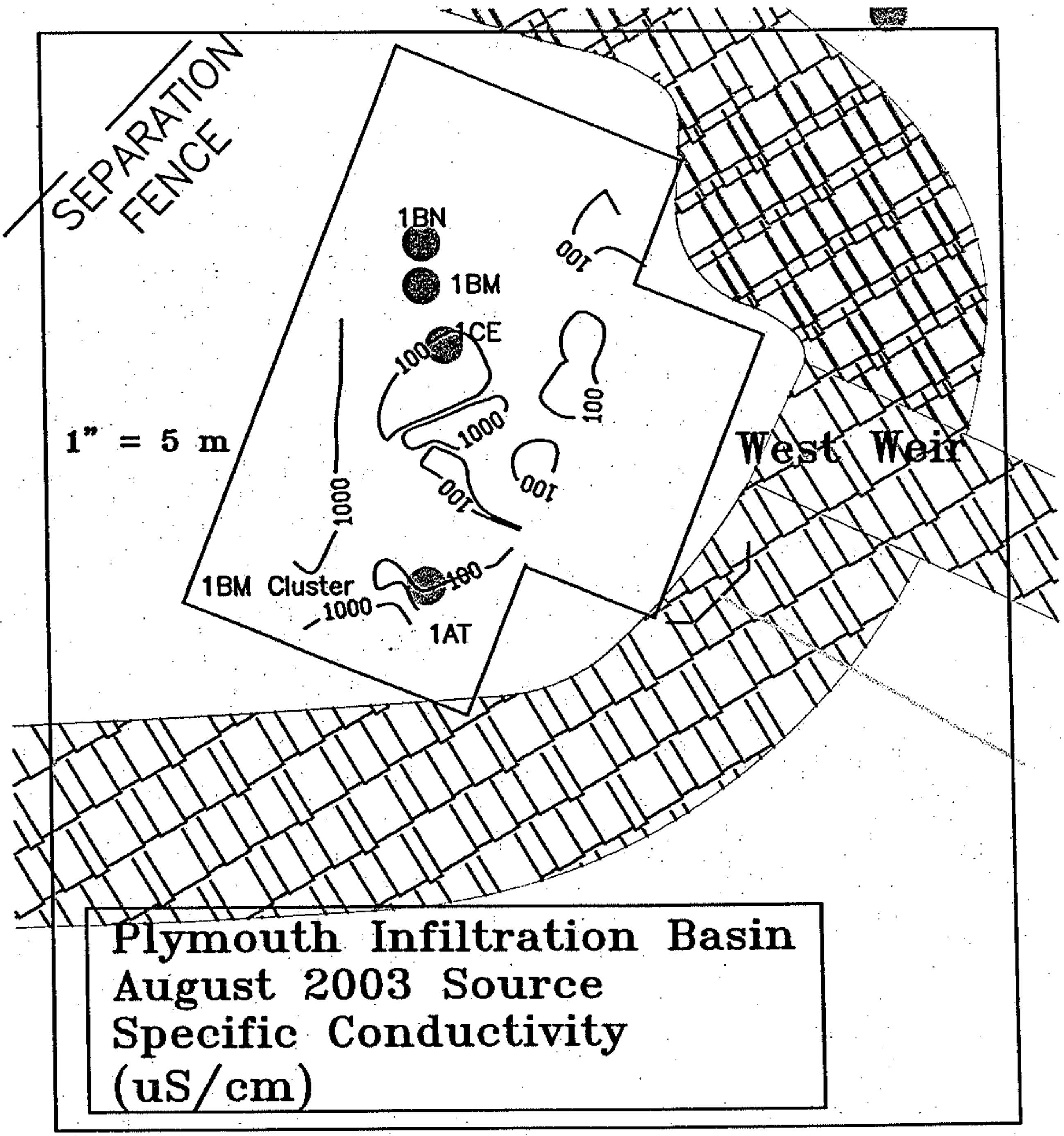
100
1000
1000
1000
100
1BM Cluster
100
5000
1AT
Plymouth Infiltration Basin
June 2003 Source
Specific Conductivity
(uS/cm)



Plymouth Infiltration Basin
July 2003 Source
Specific Conductivity
(uS/cm)


SEPARATION FENCE
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1CE
1" = 5 m
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100
1000
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100
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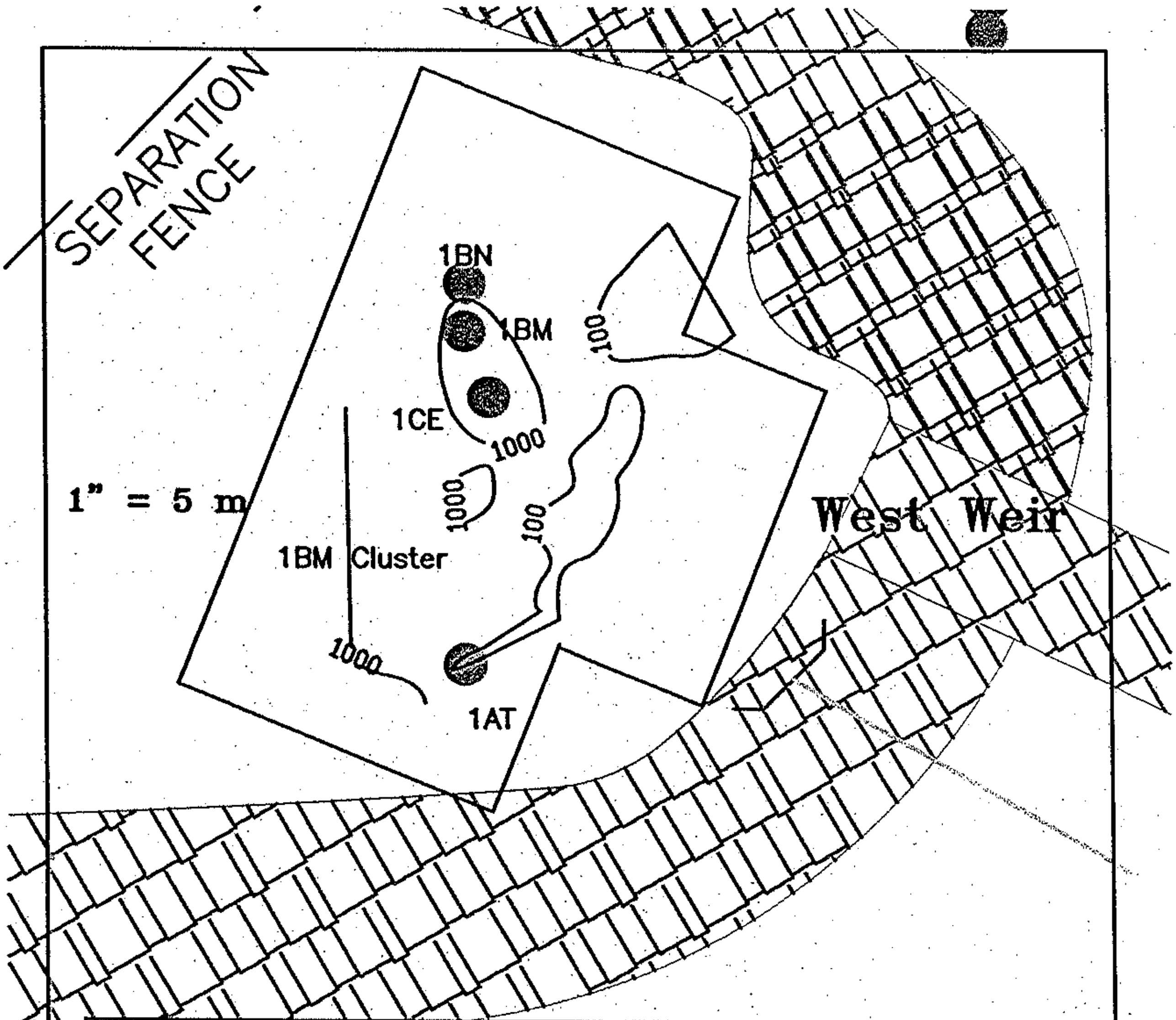
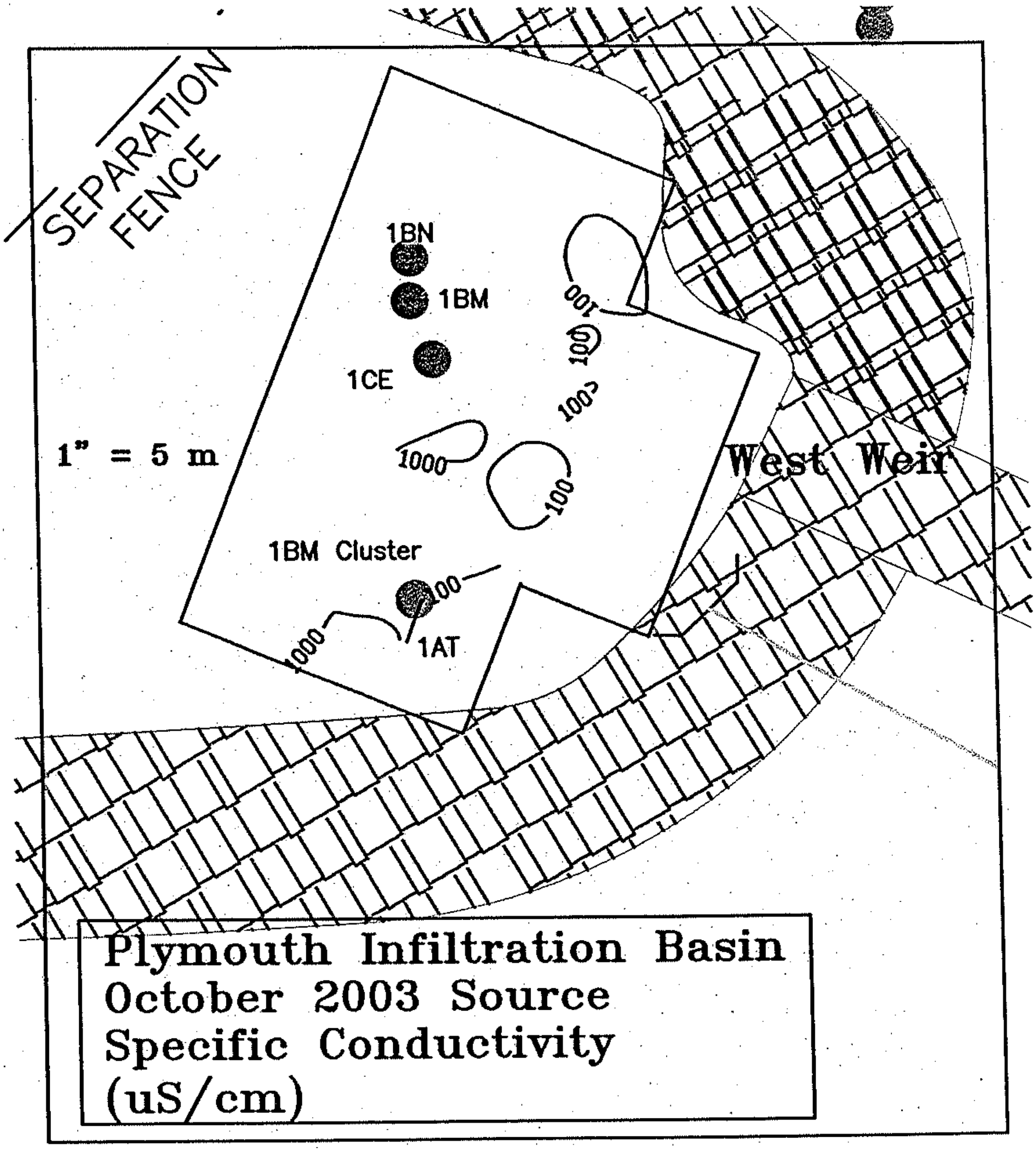
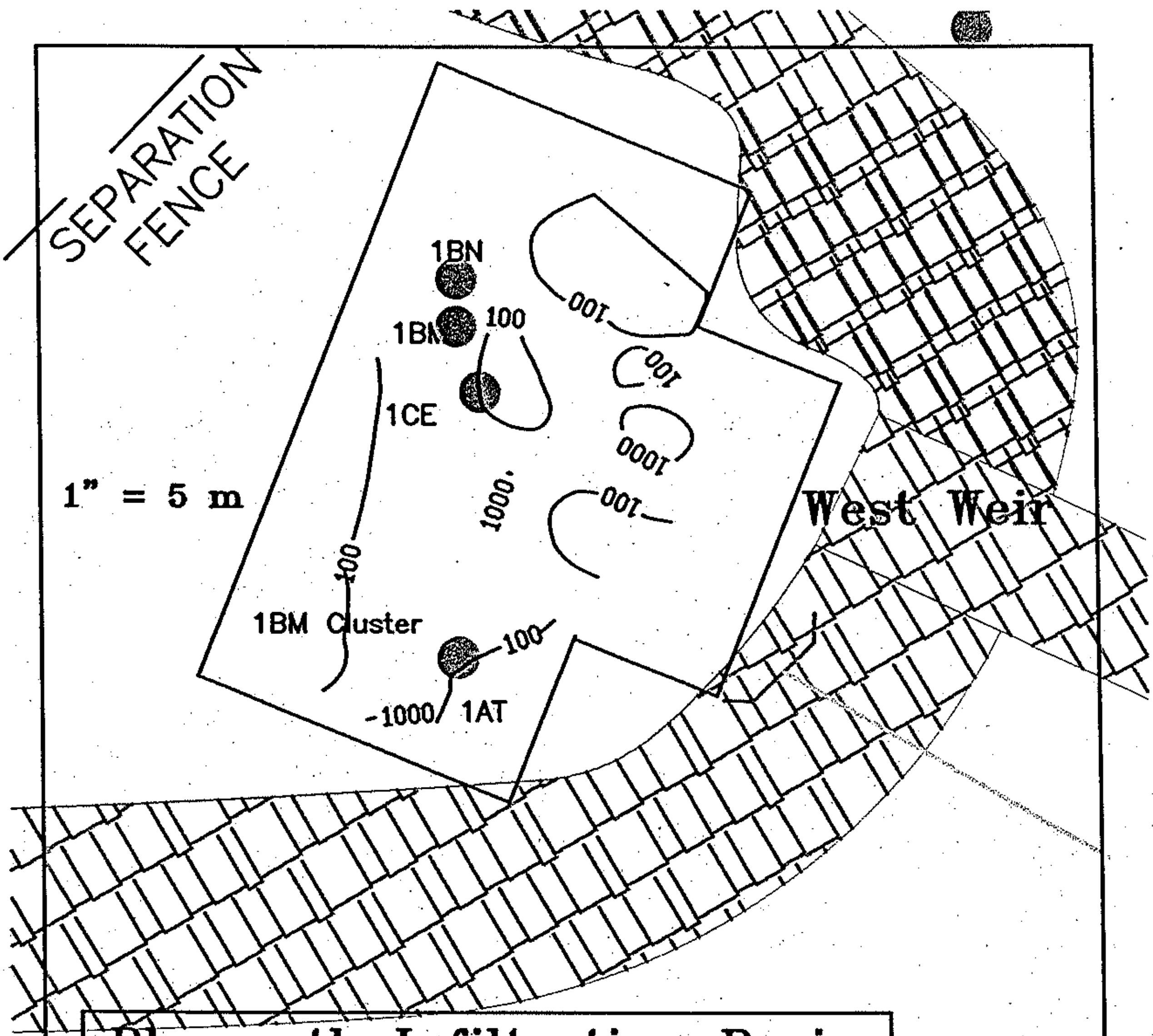
100
West Weir
1BM Cluster
1000
100
1AT
Plymouth Infiltration Basin
August 2003 Source
Specific Conductivity
(uS/cm)



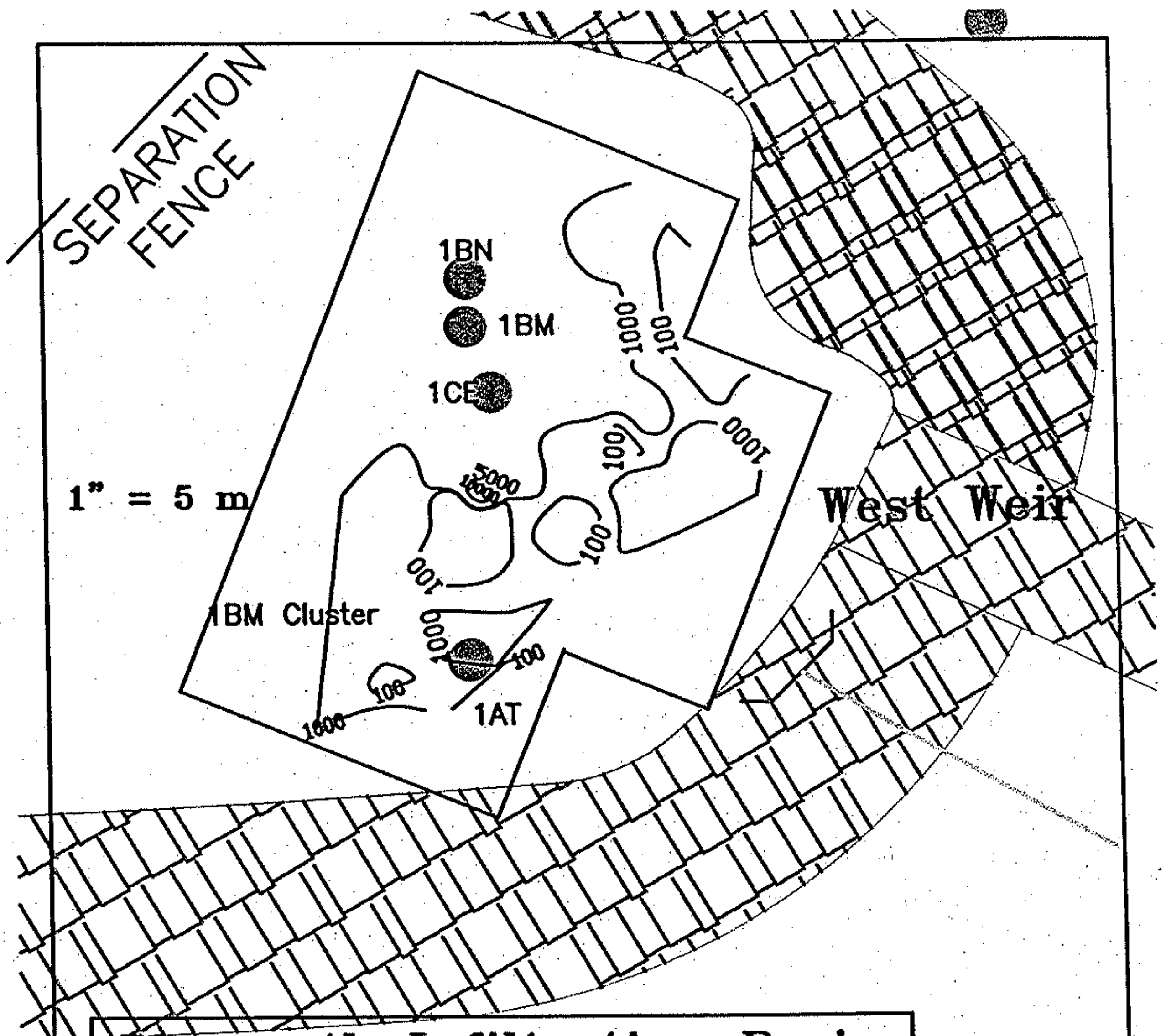
Plymouth Infiltration Basin
September 2003 Source
Specific Conductivity
(uS/cm)



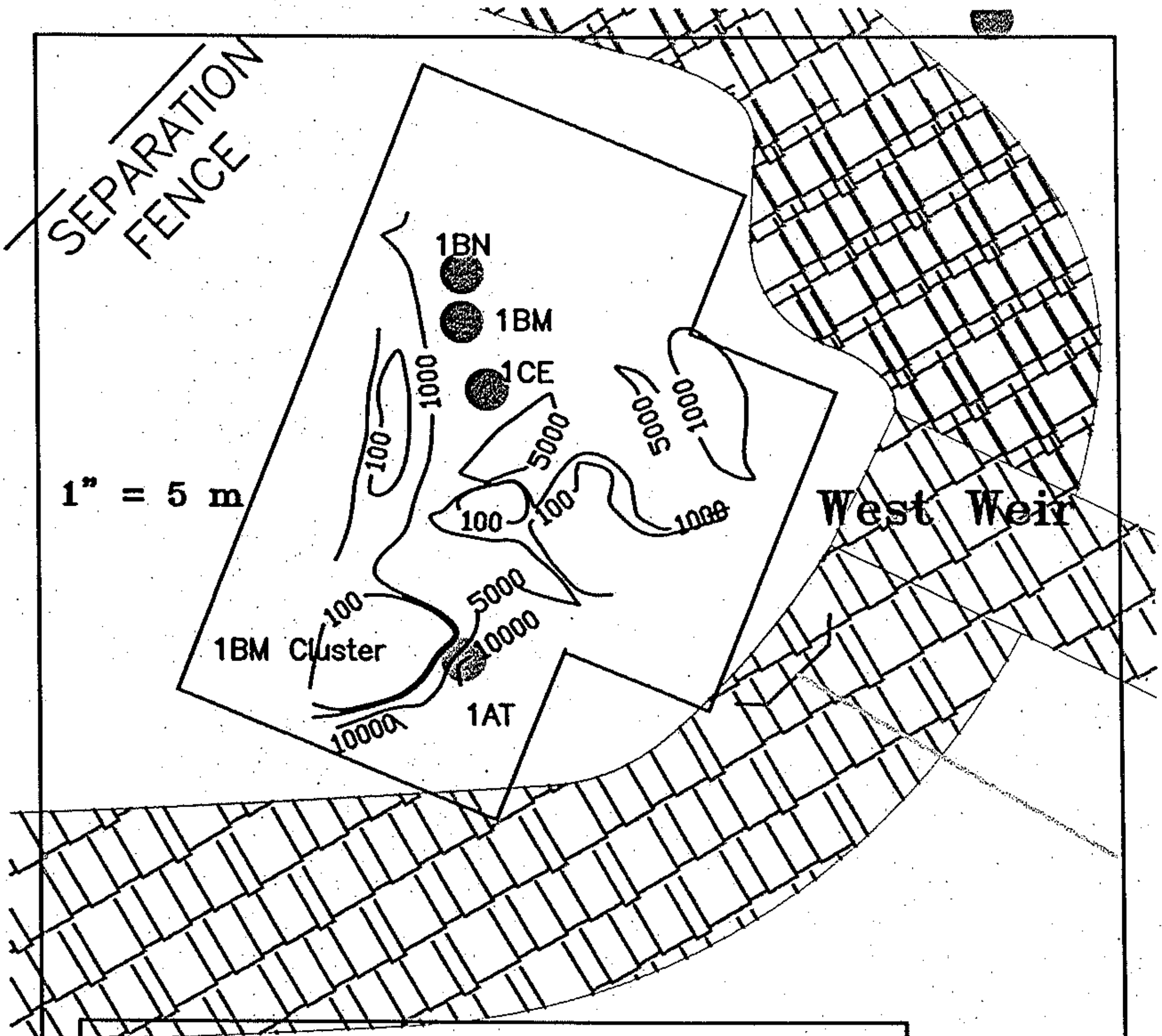
Plymouth Infiltration Basin
October 2003 Source
Specific Conductivity
(uS/cm)



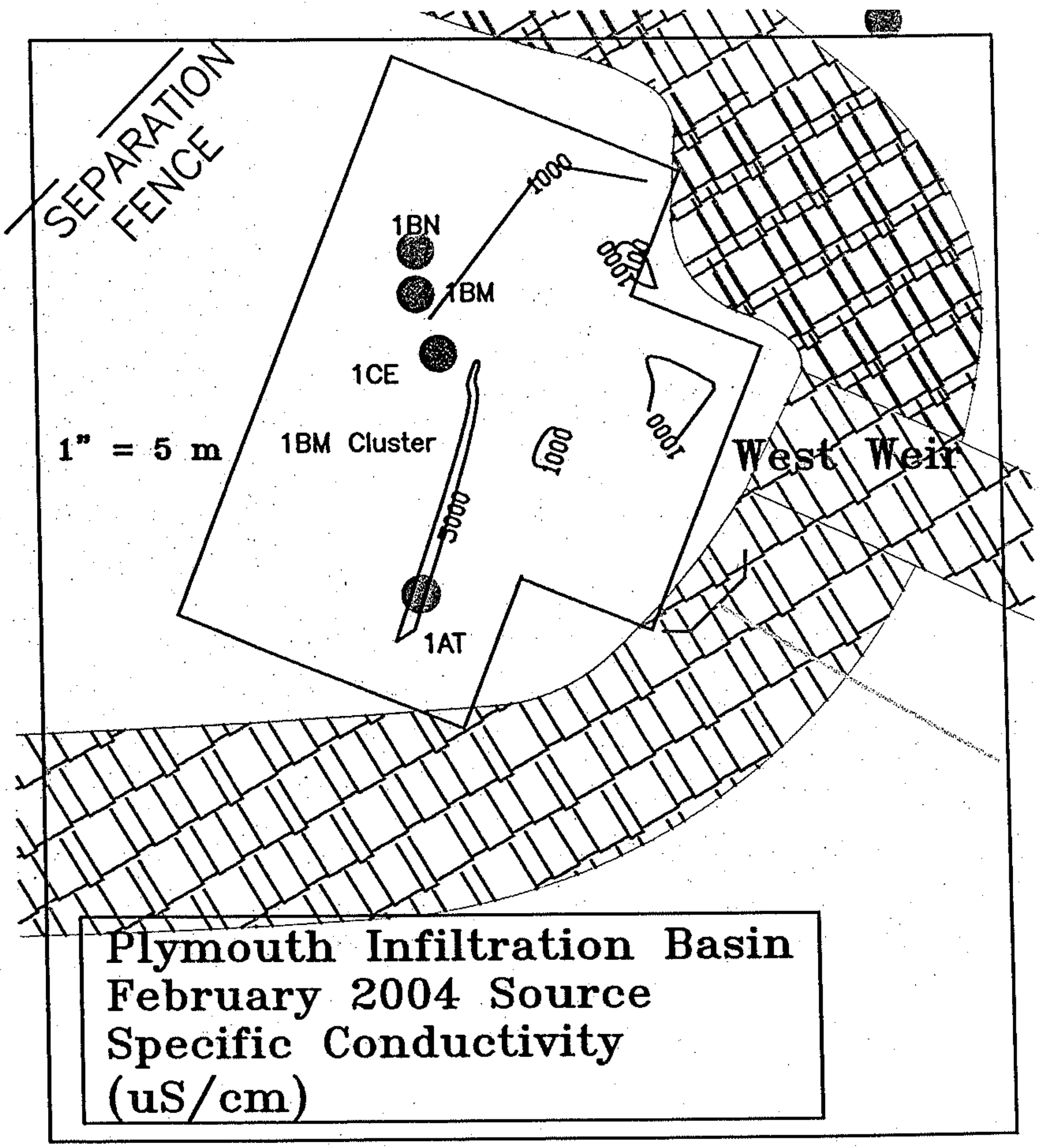
Plymouth Infiltration Basin
November 2003 Source
Specific Conductivity
(uS/cm)



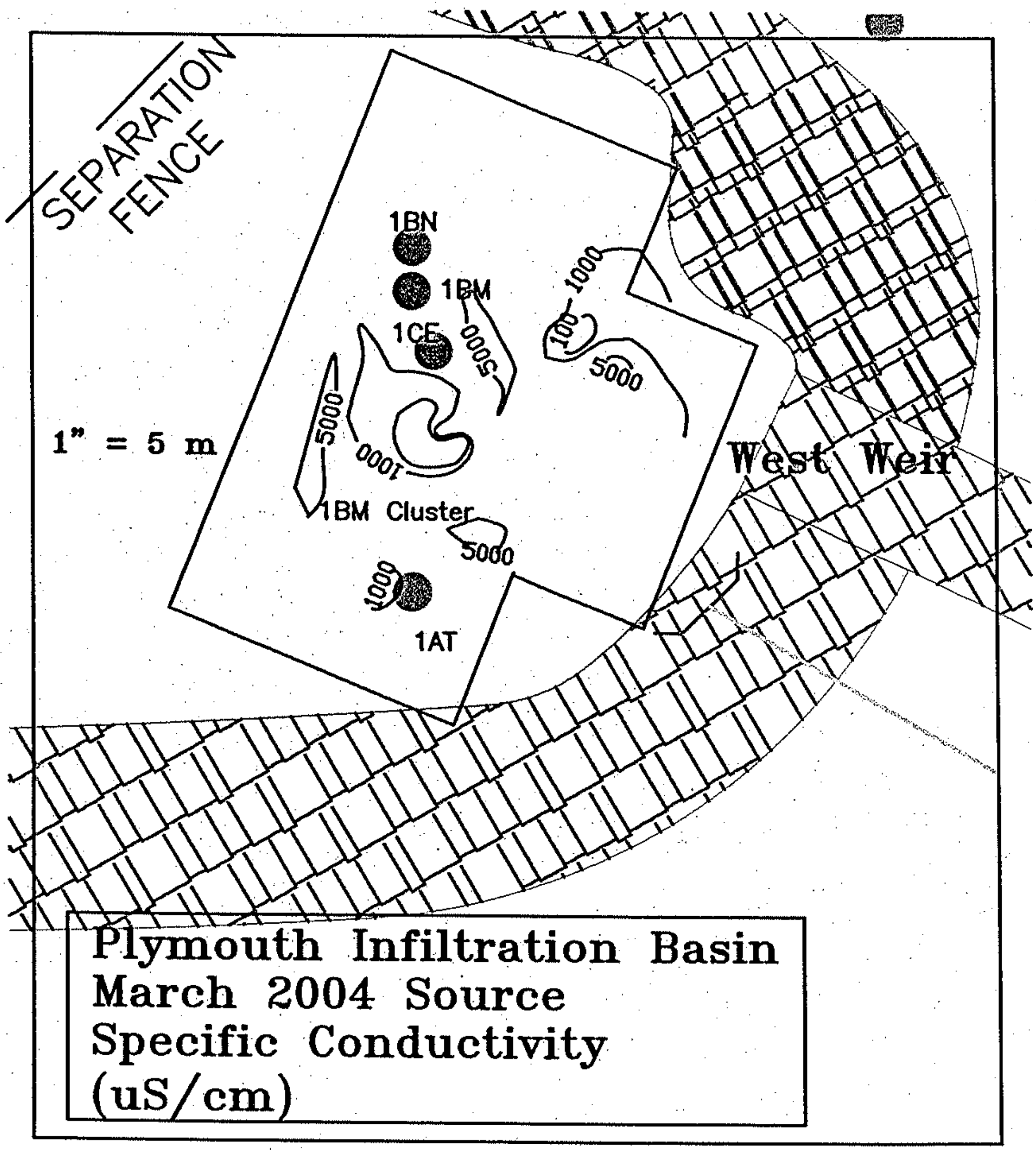
Plymouth Infiltration Basin
December 2003 Source
Specific Conductivity
(uS/cm)



Plymouth Infiltration Basin
January 2004 Source
Specific Conductivity
(uS/cm)



Plymouth Infiltration Basin
February 2004 Source
Specific Conductivity
(uS/cm)


SEPARATION FENCE
1" = 5 m
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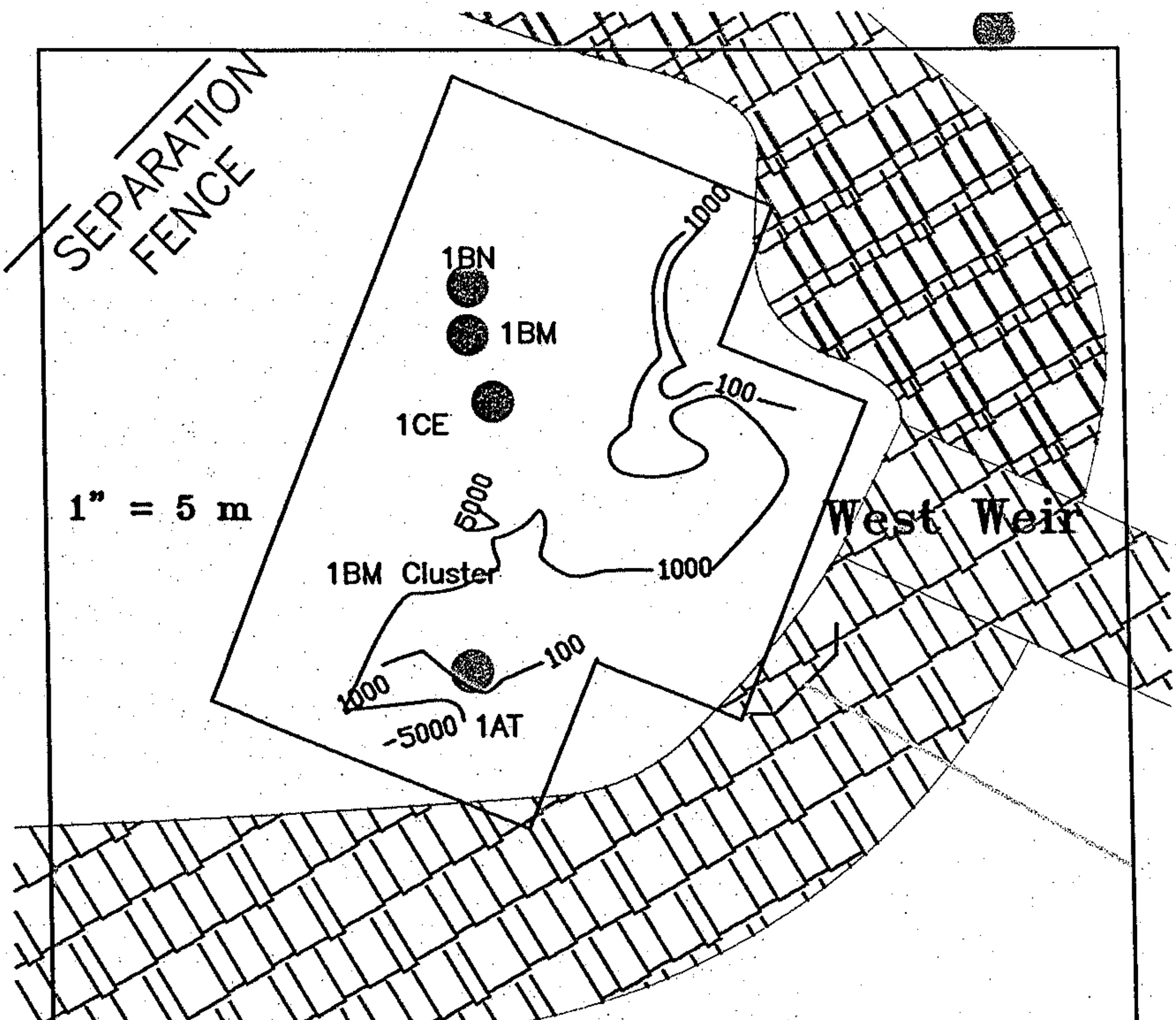
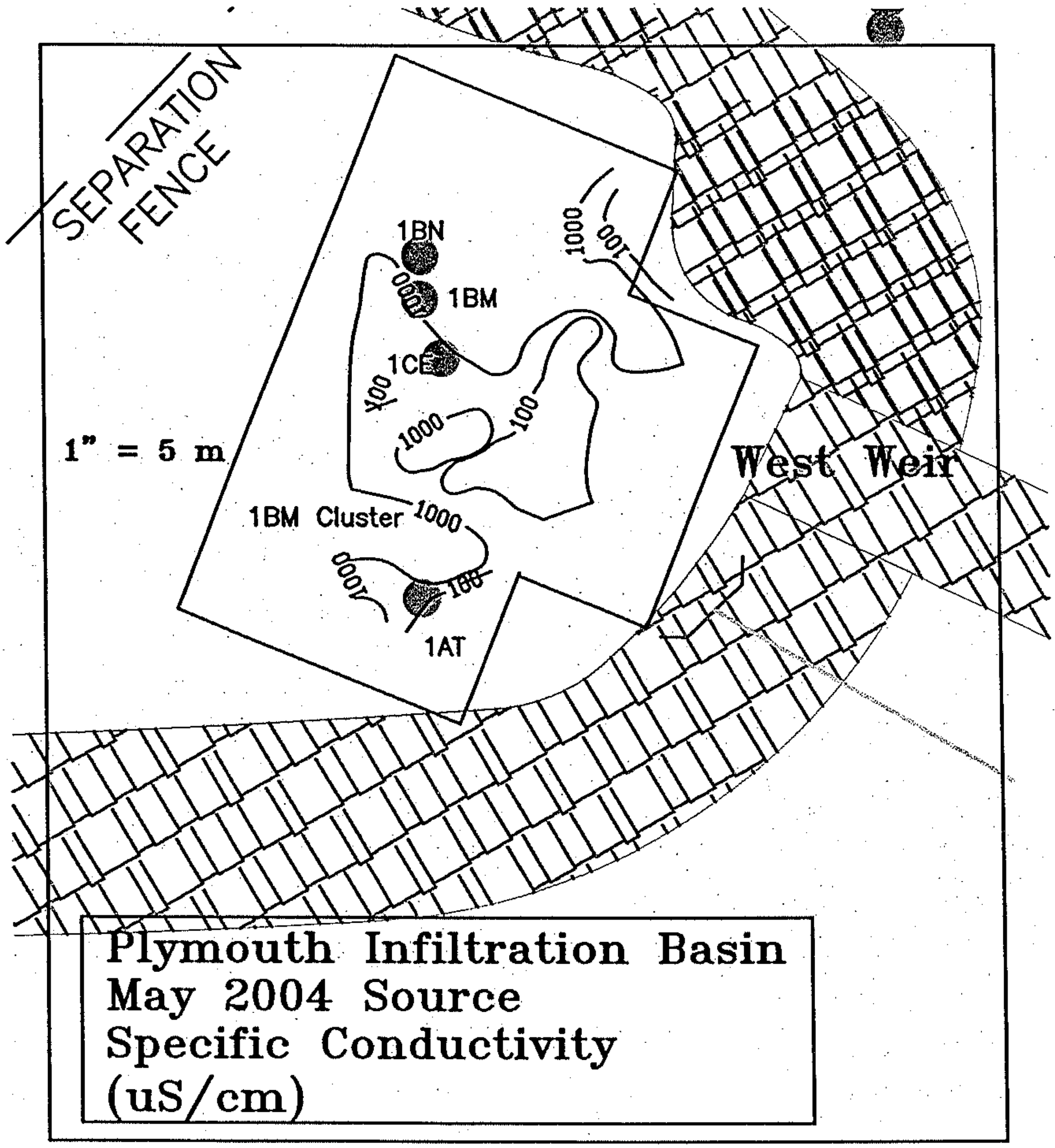
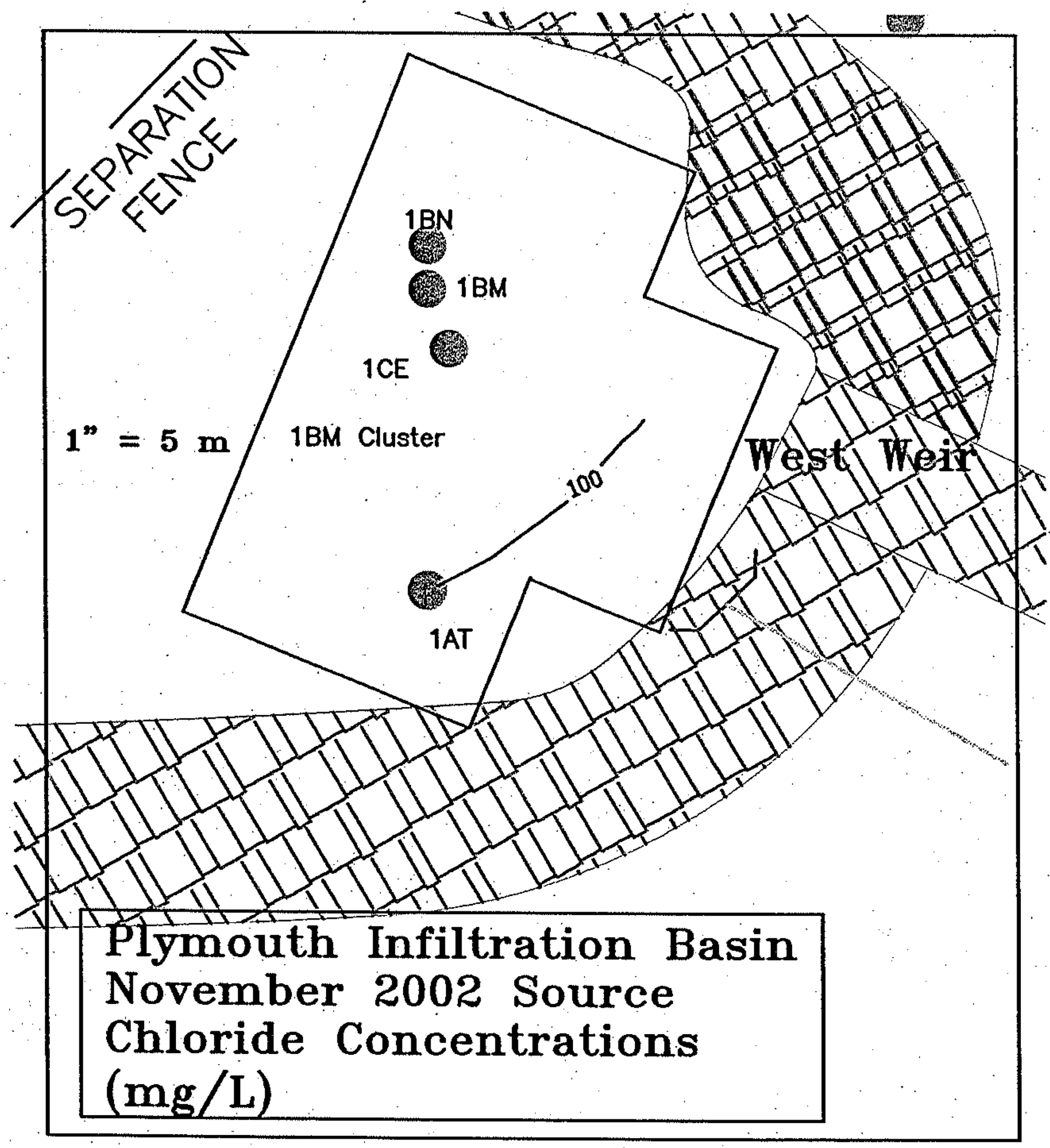
1BM
1CE
5000
1000
100
1BM Cluster
1AT
West Weir
Plymouth Infiltration Basin
March 2004 Source
Specific Conductivity
(uS/cm)



Plymouth Infiltration Basin
April 2004 Source
Specific Conductivity
(uS/cm)


SEPARATION FENCE
1" = 5 m
1BN
1BM
1CE
1BM Cluster
1AT
1000
100
West Weir
Plymouth Infiltration Basin
May 2004 Source
Specific Conductivity
(uS/cm)

APPENDIX I
Chloride Source Isopleths, November 2002 – May 2004


SEPARATION
FENCE
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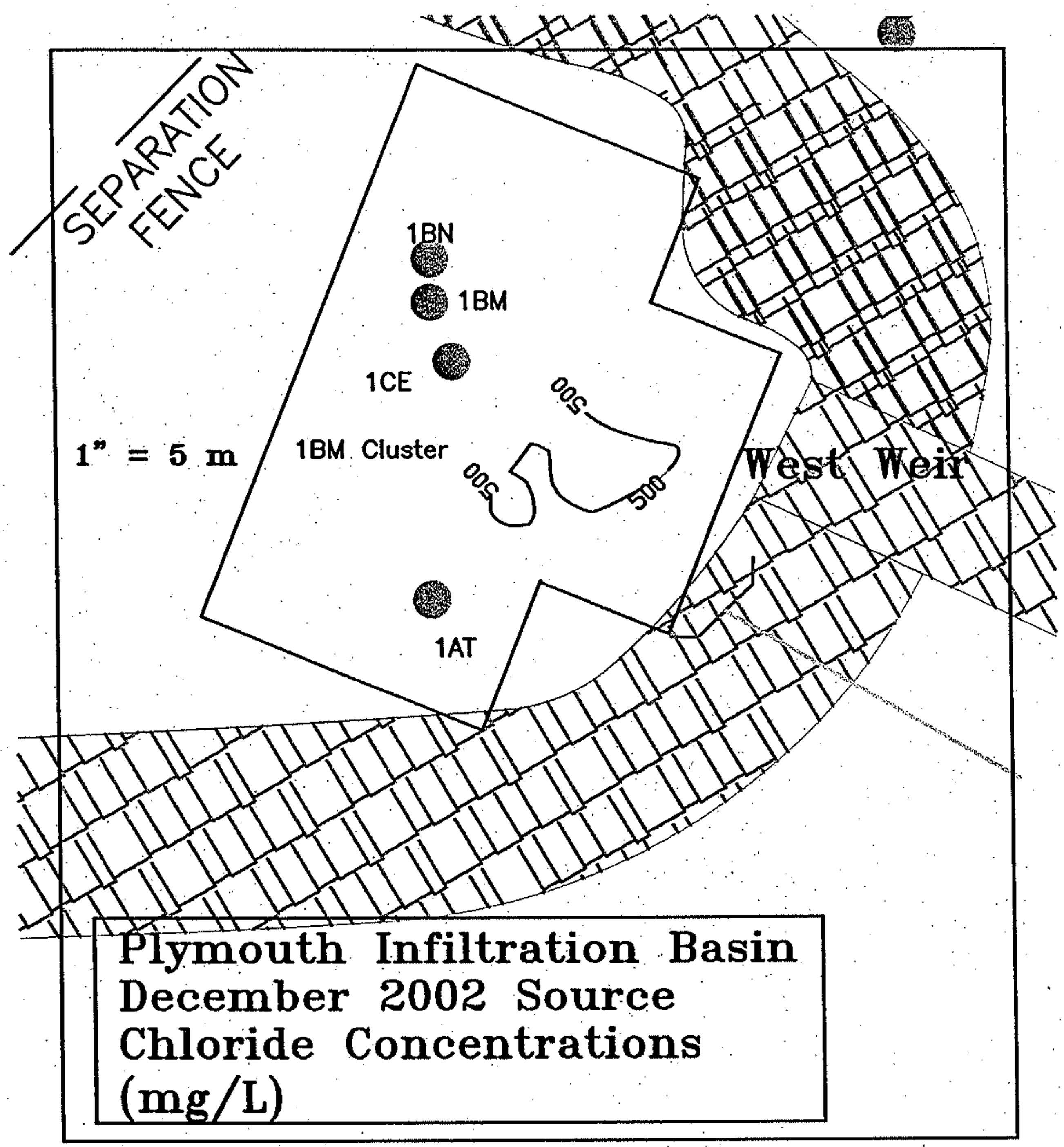
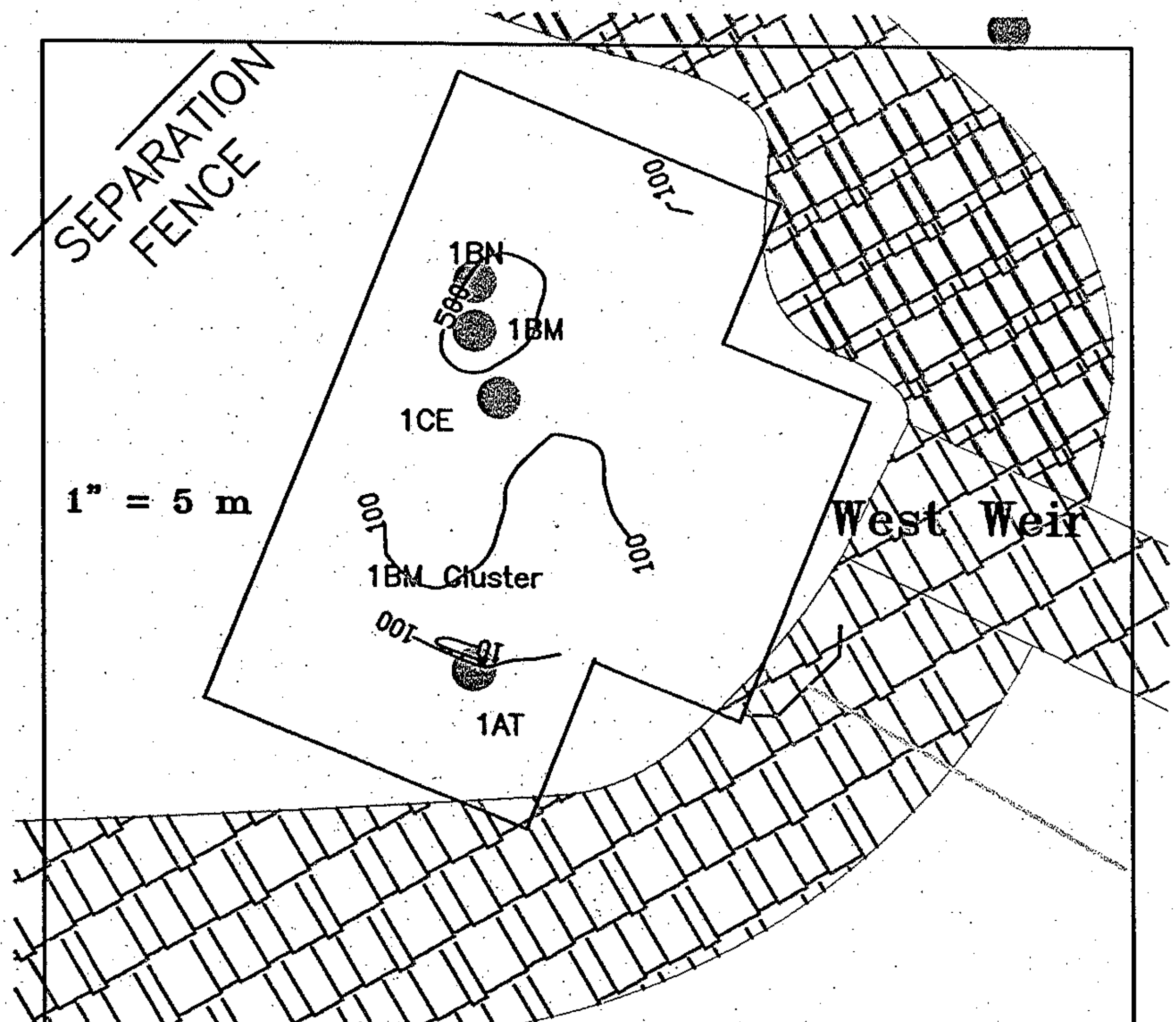
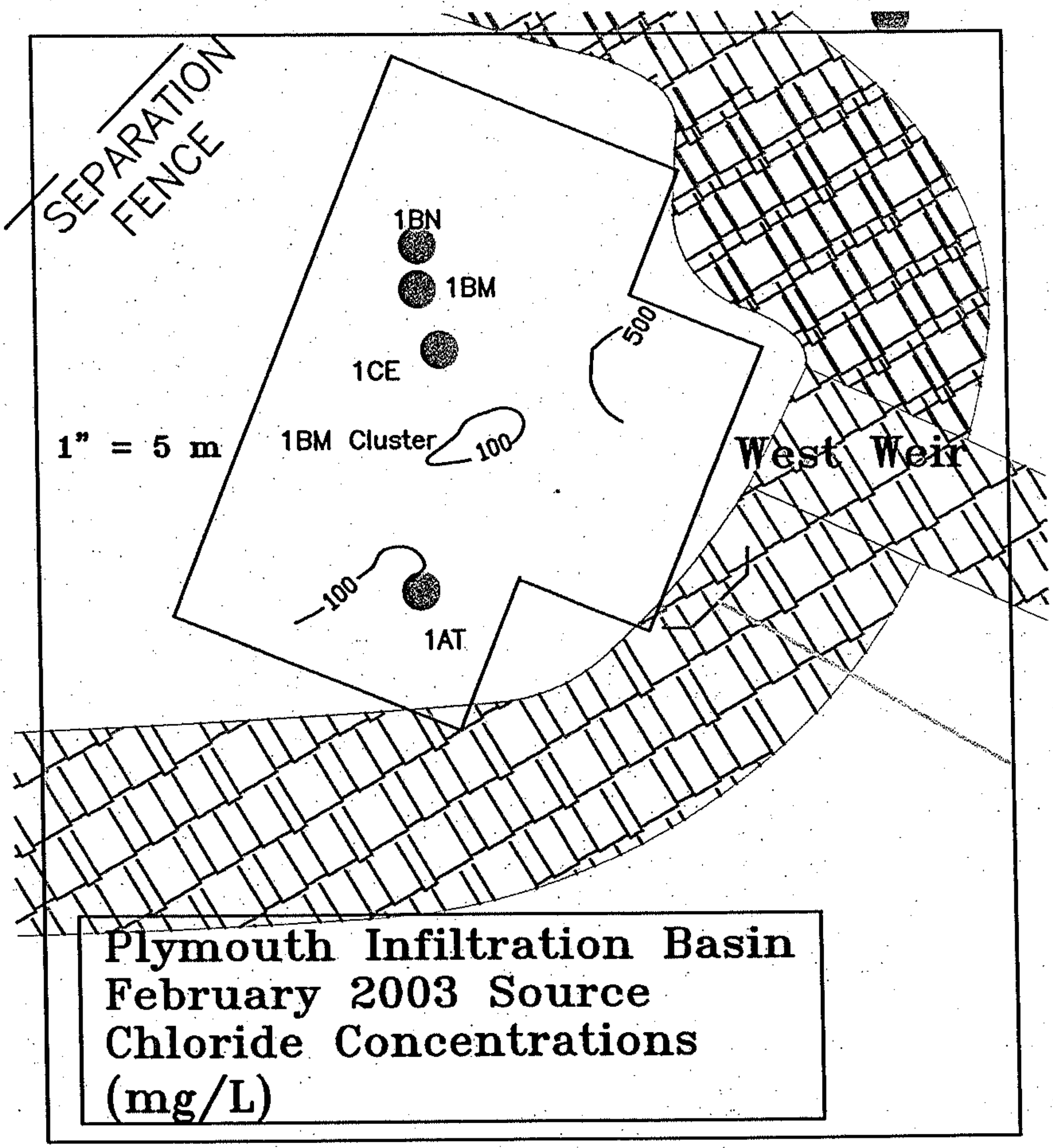
1BM
1CE
1" = 5 m
1BM Cluster
100
West Weir
1AT
Plymouth Infiltration Basin
November 2002 Source
Chloride Concentrations
(mg/L)



Plymouth Infiltration Basin
December 2002 Source
Chloride Concentrations
(mg/L)



Plymouth Infiltration Basin
January 2003 Source
Chloride Concentrations
(mg/L)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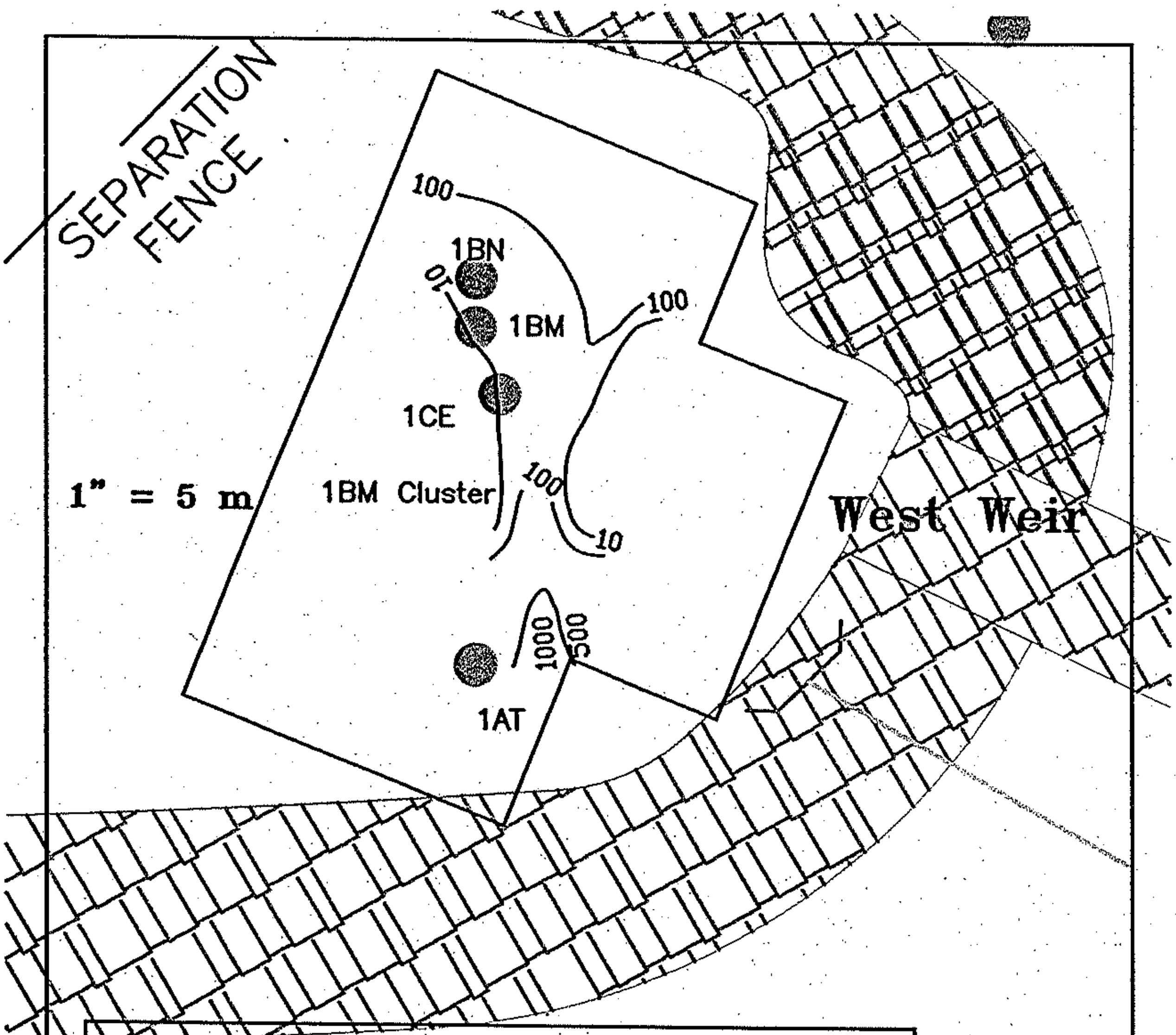
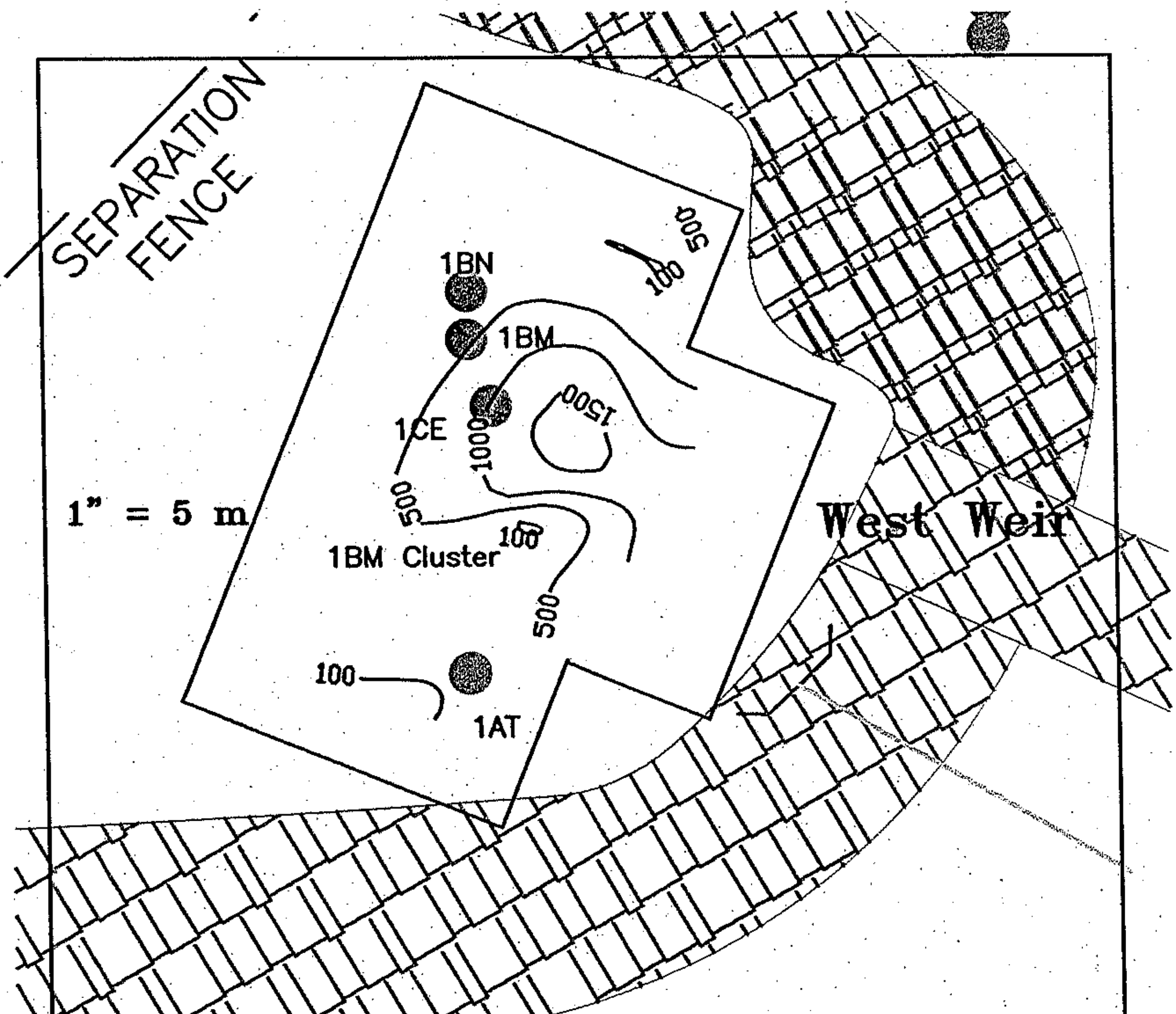
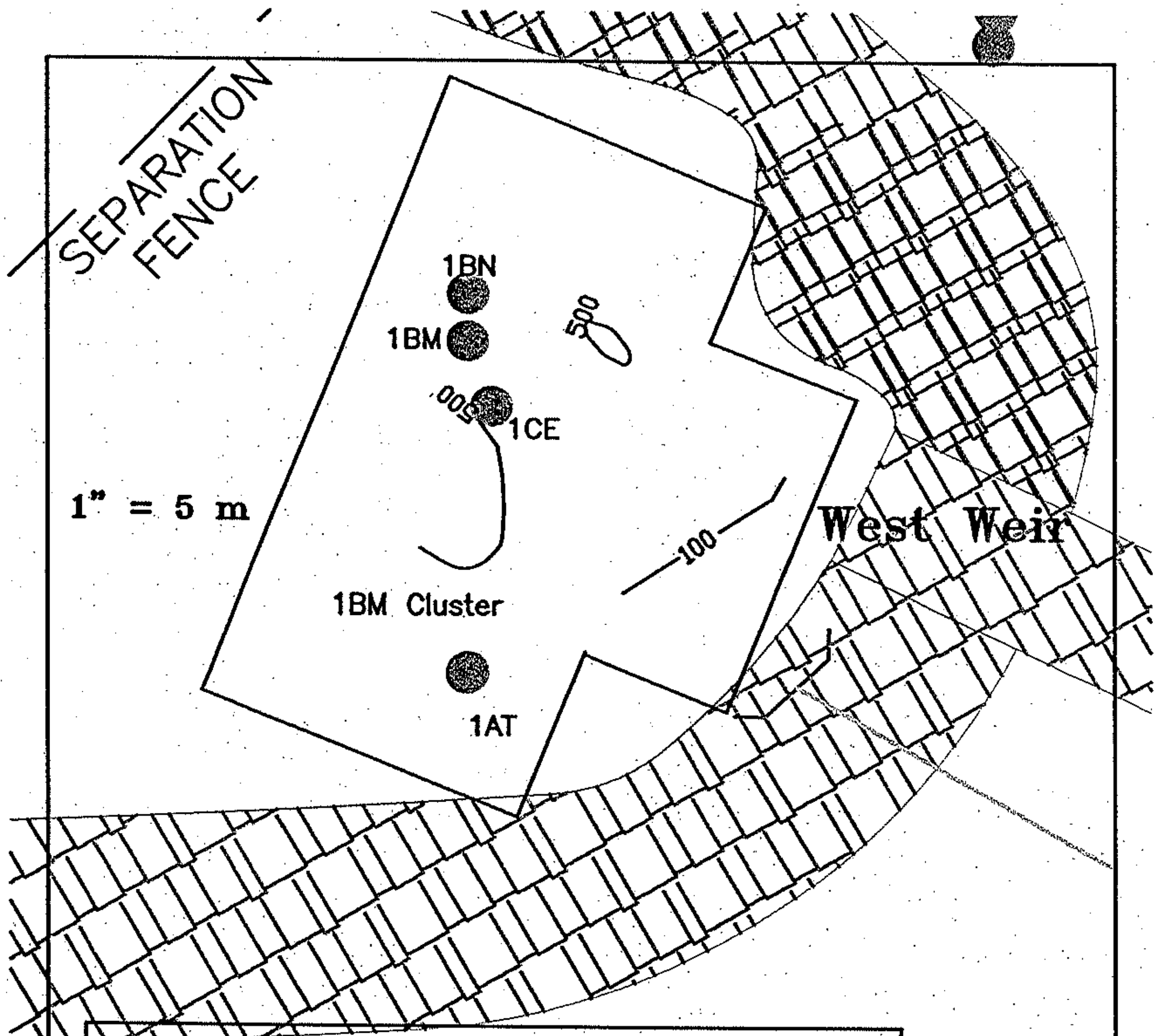
1BM
1CE
1" = 5 m
1BM Cluster
100
500
West Weir
100
1AT
Plymouth Infiltration Basin
February 2003 Source
Chloride Concentrations
(mg/L)



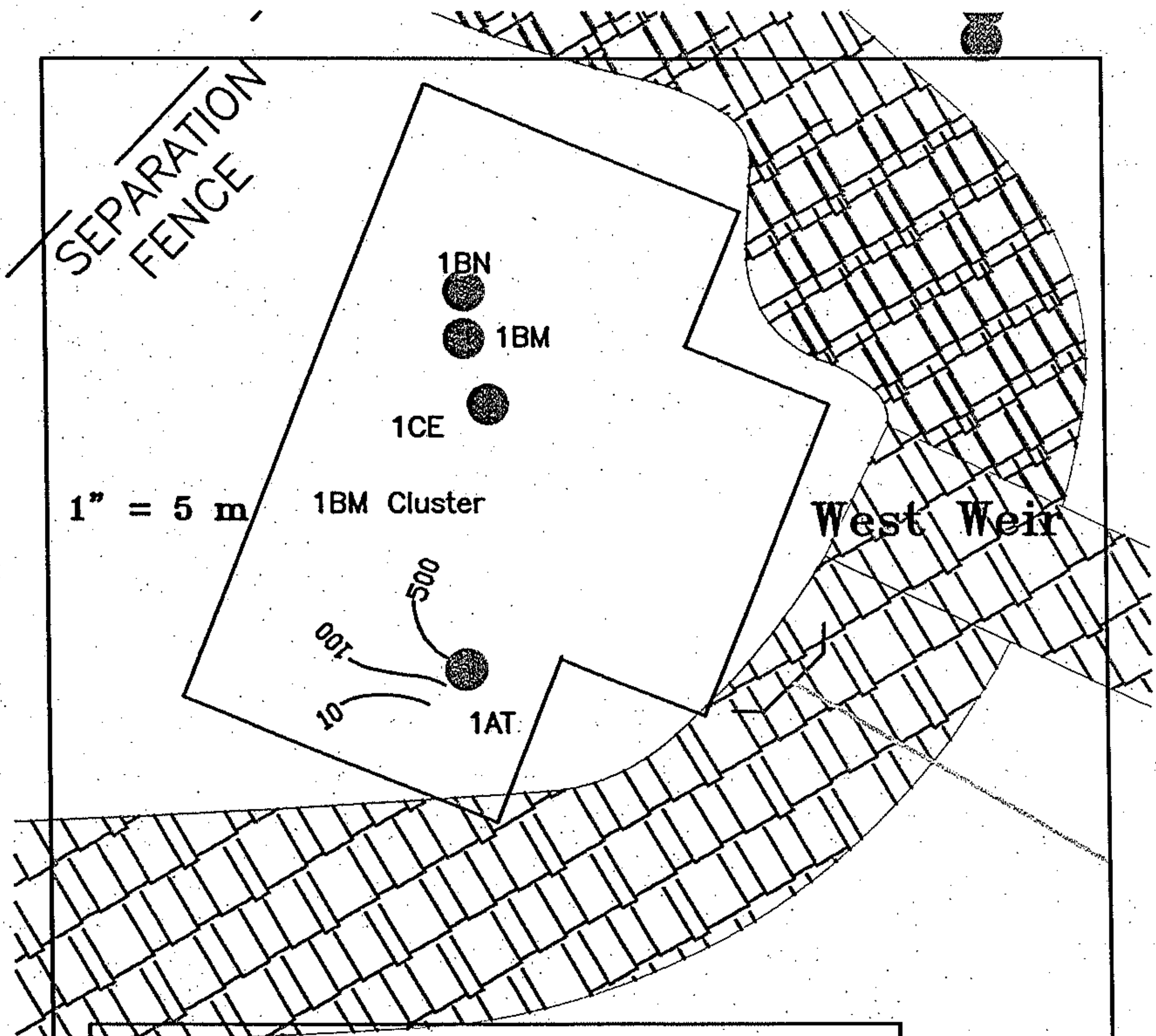
Plymouth Infiltration Basin
March 2003 Source Chloride
Concentrations (mg/L)



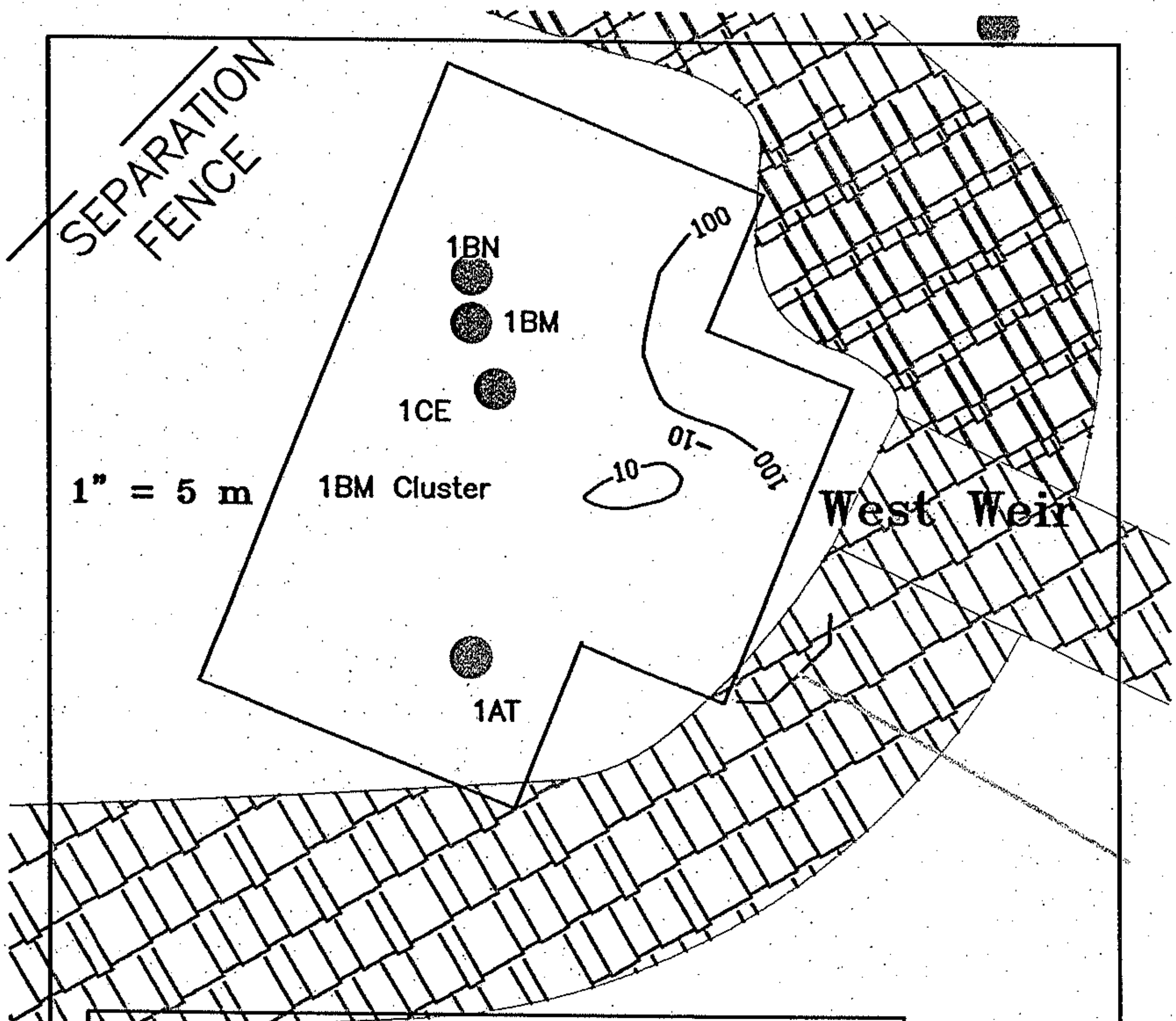
Plymouth Infiltration Basin
April 2003 Source Chloride
Concentrations (mg/L)



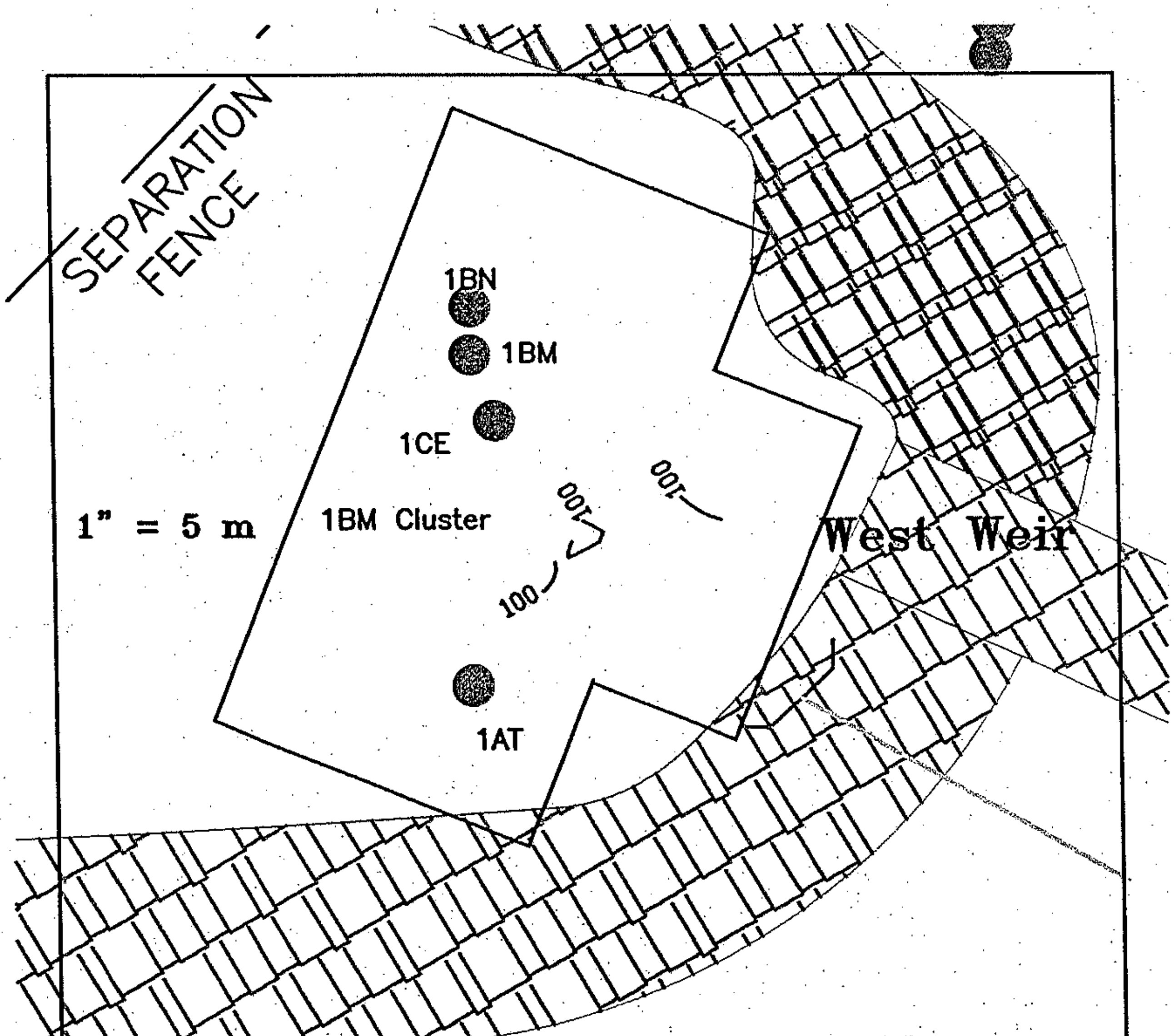
Plymouth Infiltration Basin
May 2003 Source Chloride
Concentrations (mg/L)



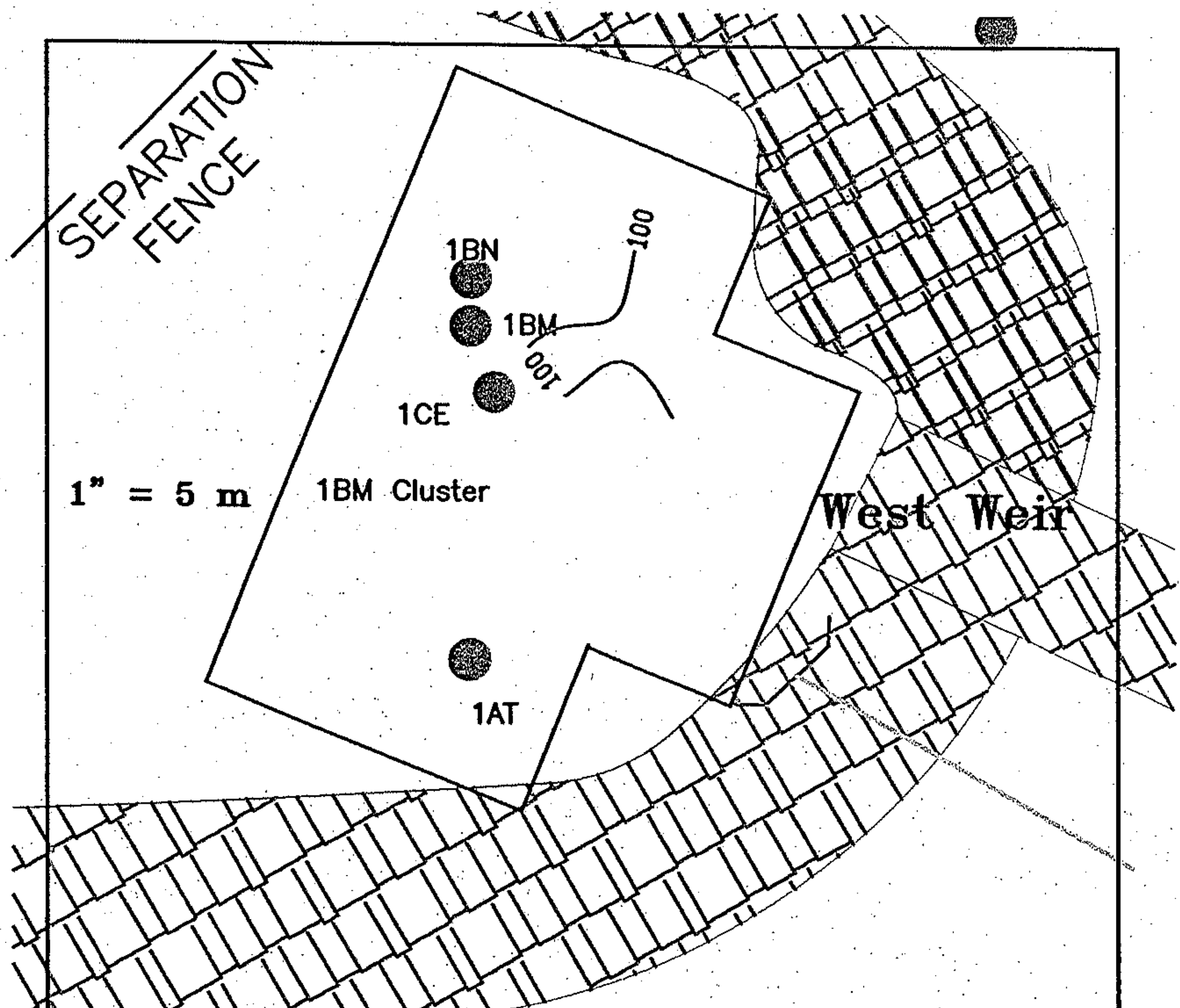
Plymouth Infiltration Basin
June 2003 Source Chloride
Concentrations (mg/L)



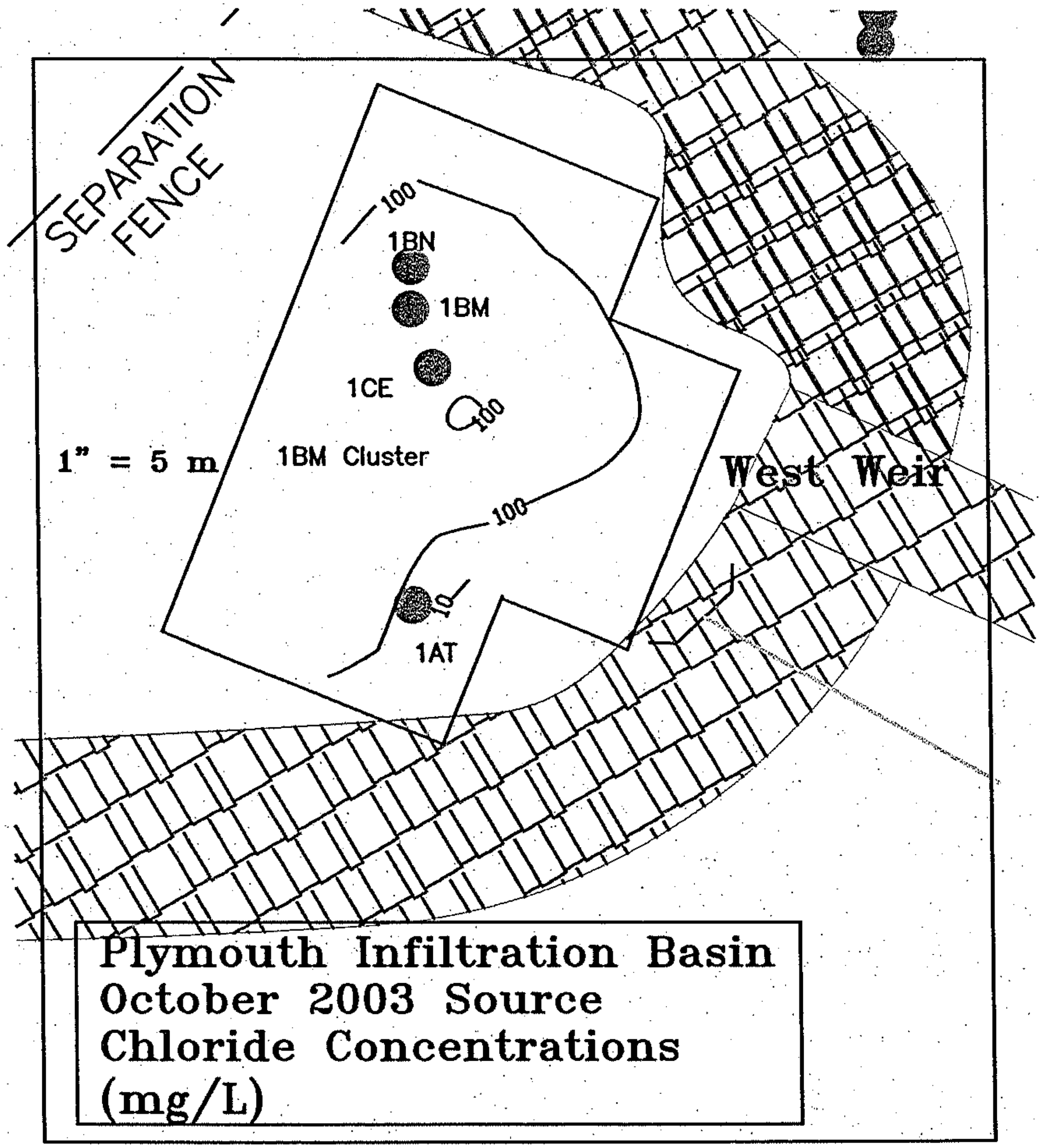
Plymouth Infiltration Basin
July 2003 Source Chloride
Concentrations (mg/L)

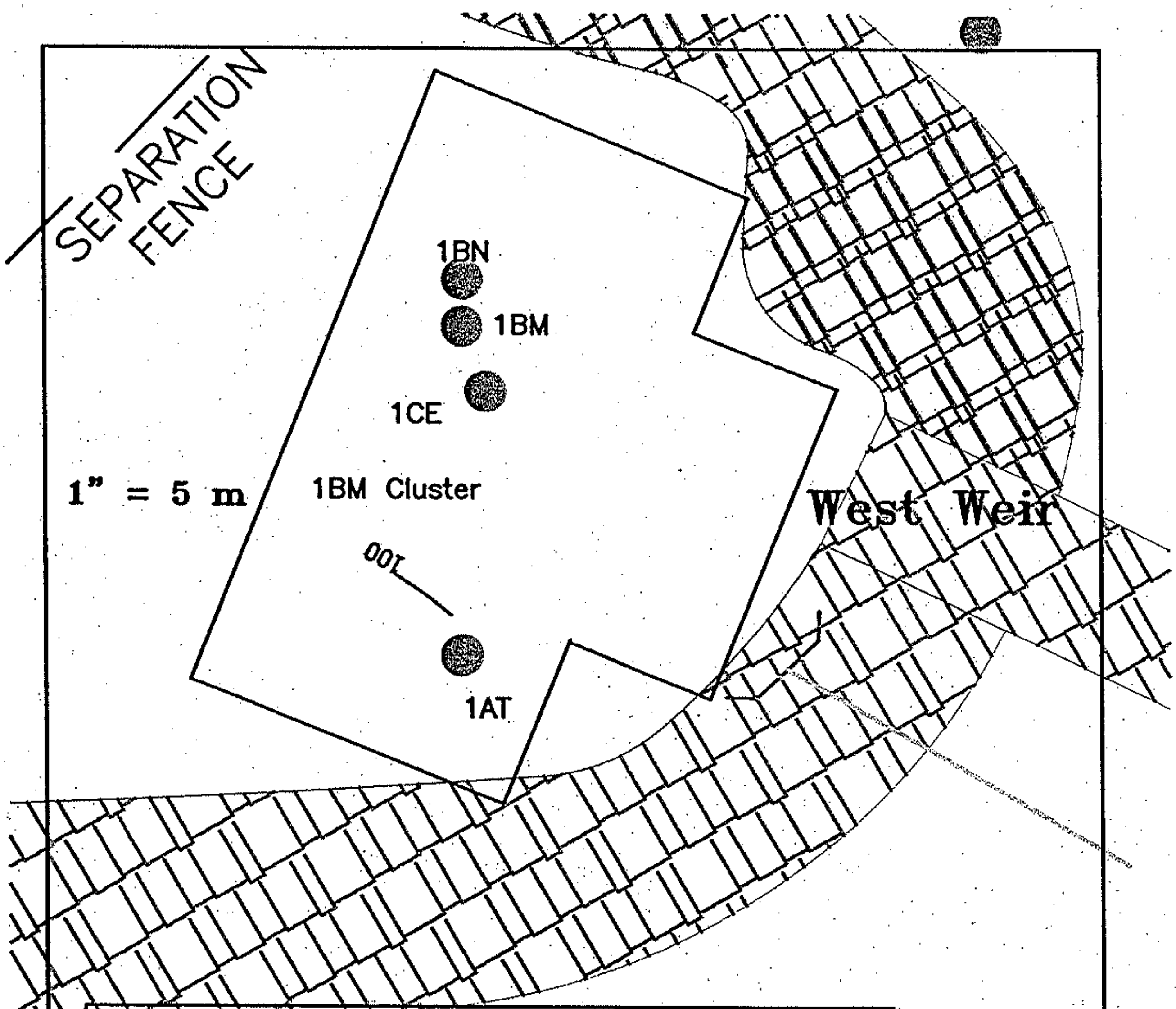


Plymouth Infiltration Basin
August 2003 Source
Chloride Concentrations
(mg/L)

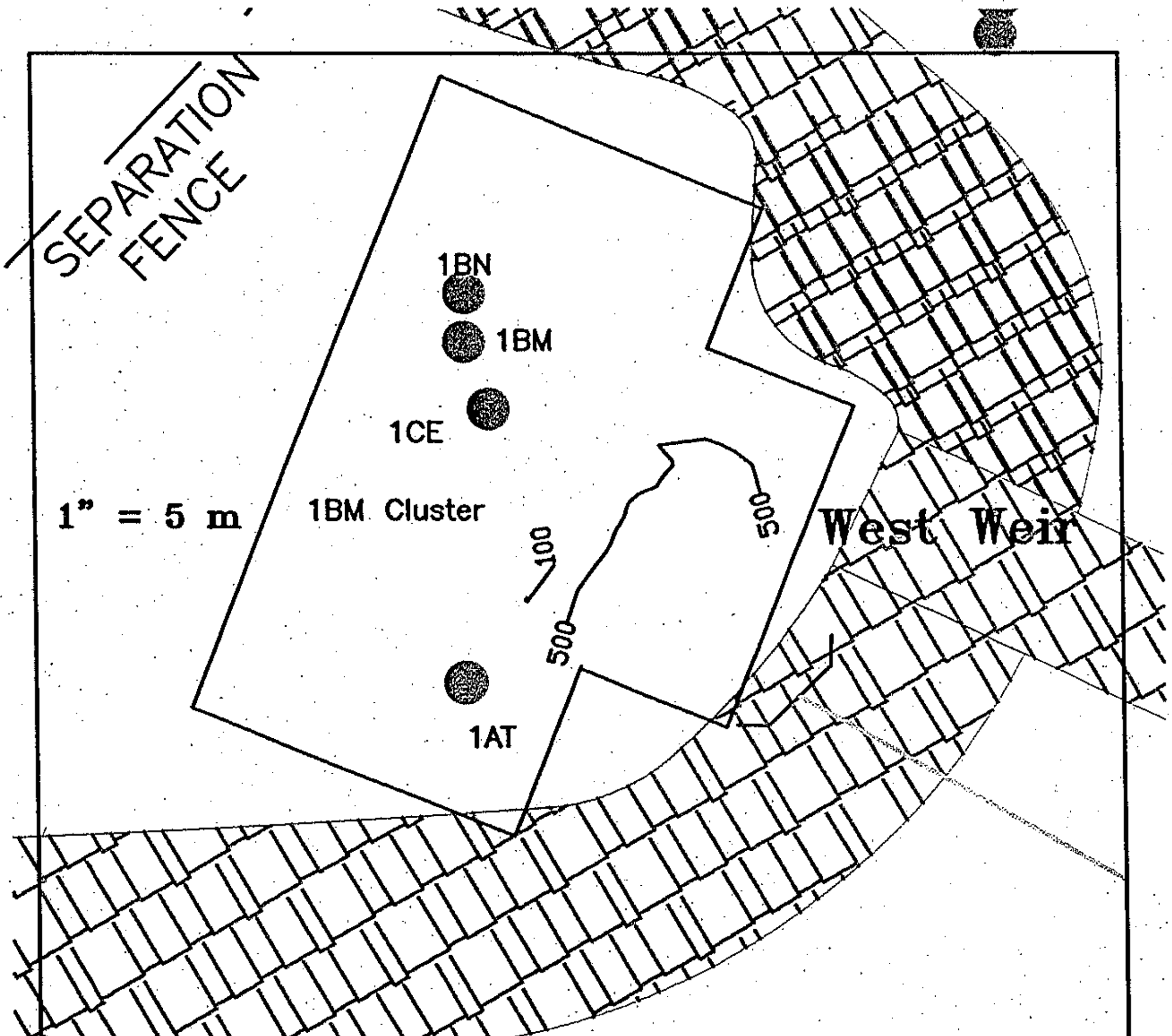


Plymouth Infiltration Basin
September 2003 Source
Chloride Concentrations
(mg/L)

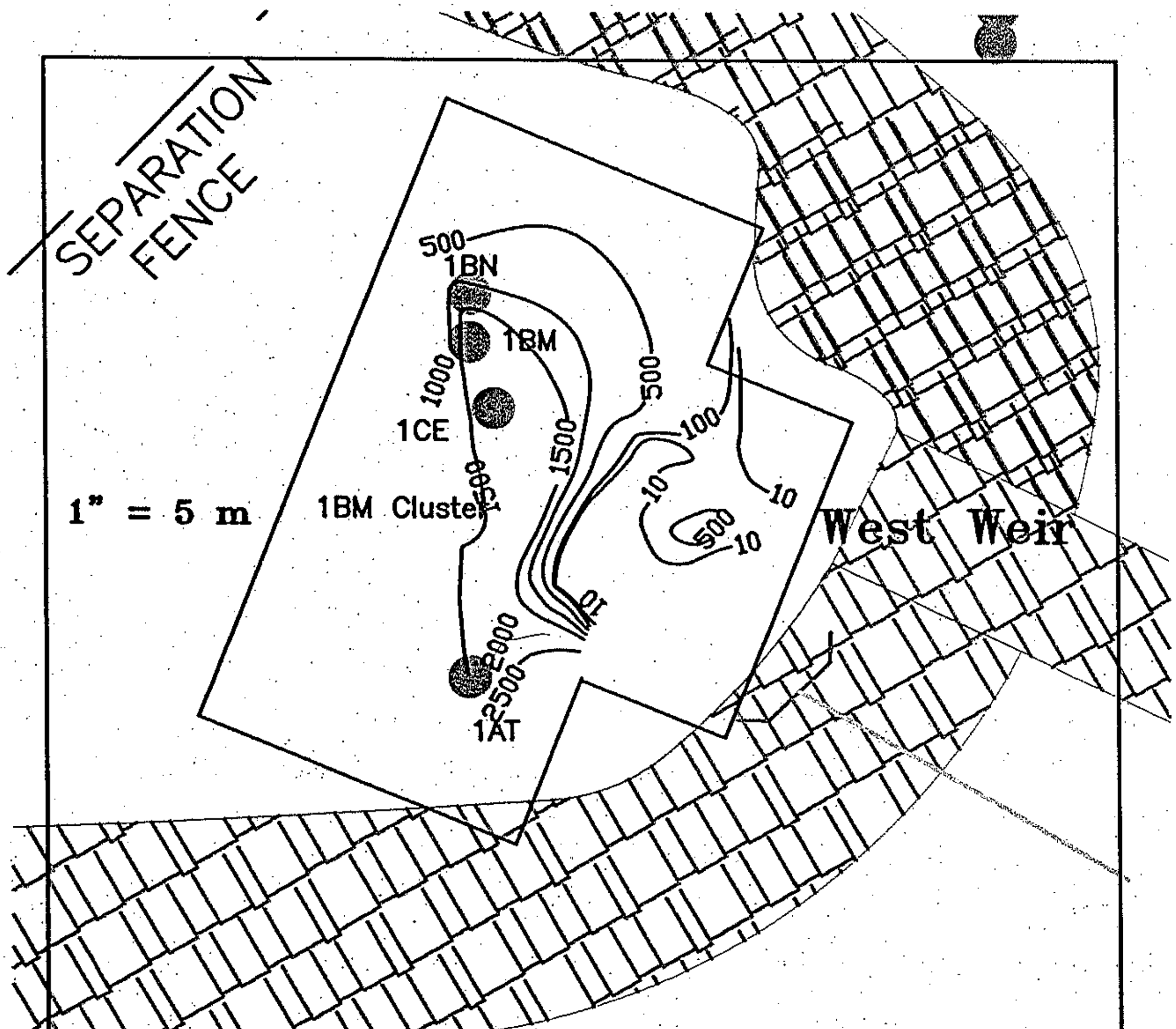

SEPARATION FENCE
100
1BN
1BM
1CE
100
1" = 5 m
1BM Cluster
West Weir
100
10
1AT
Plymouth Infiltration Basin
October 2003 Source
Chloride Concentrations
(mg/L)



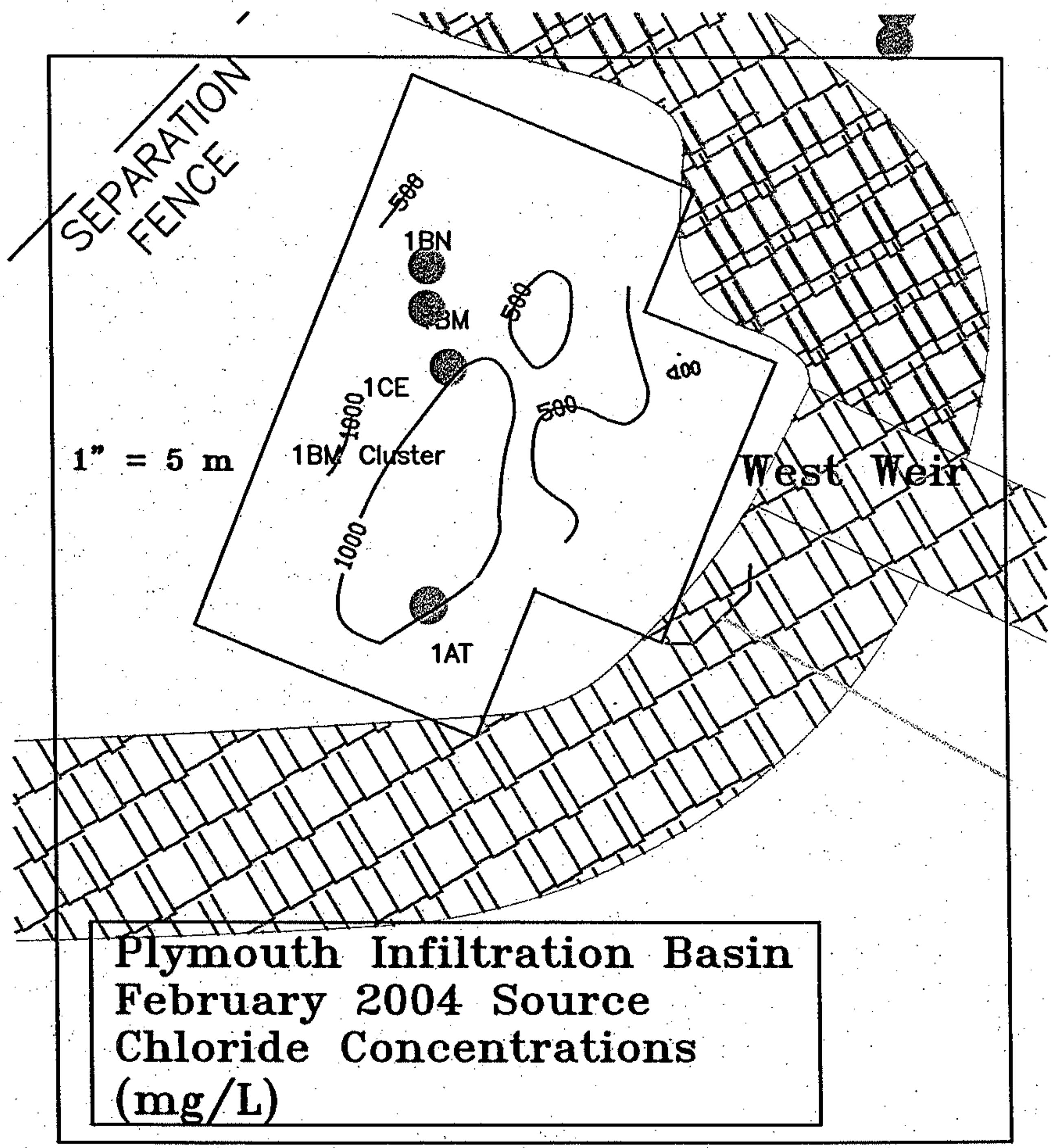
Plymouth Infiltration Basin
November 2003 Source
Chloride Concentrations
(mg/L)



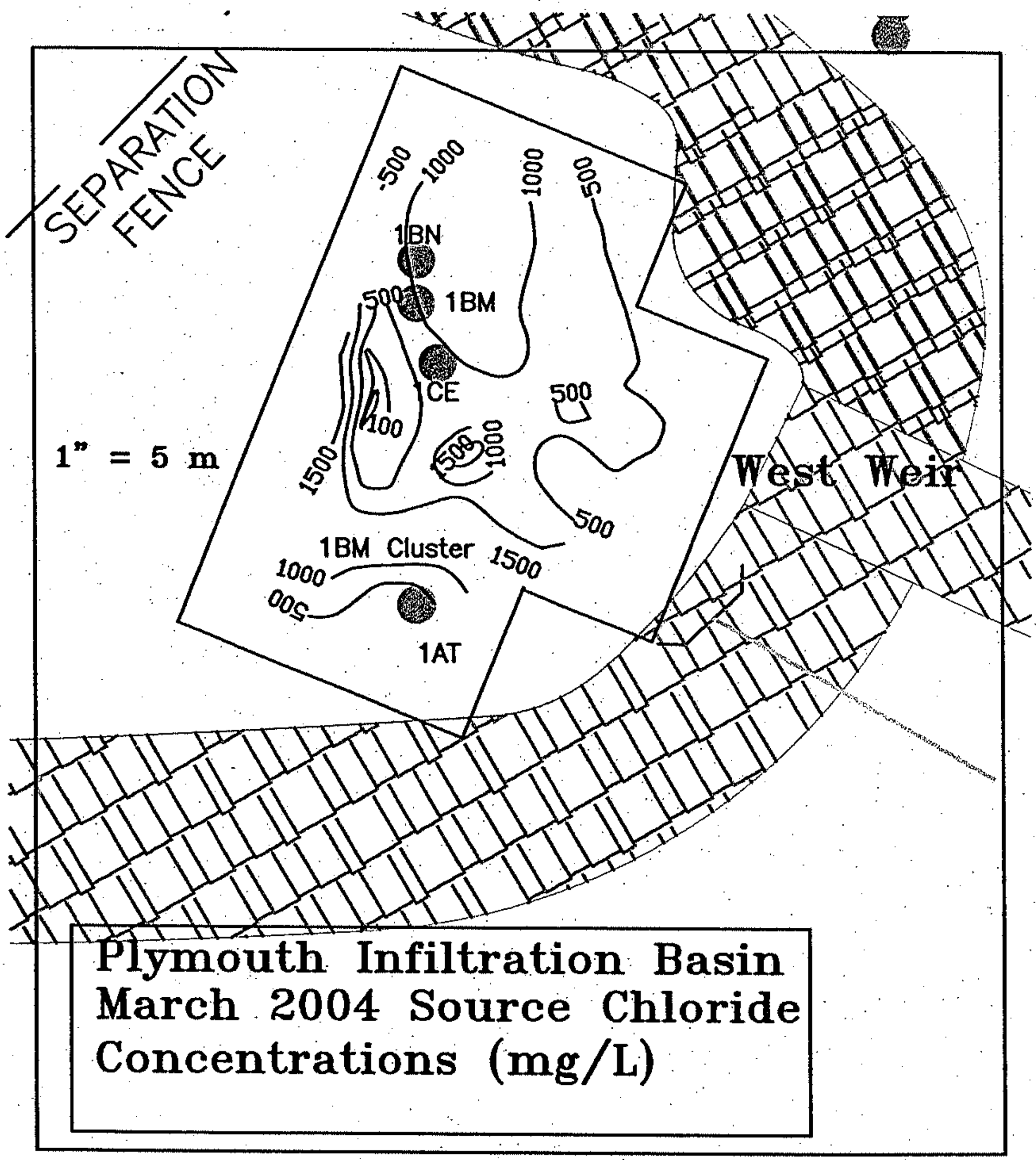
Plymouth Infiltration Basin
December 2003 Source
Chloride Concentrations
(mg/L)

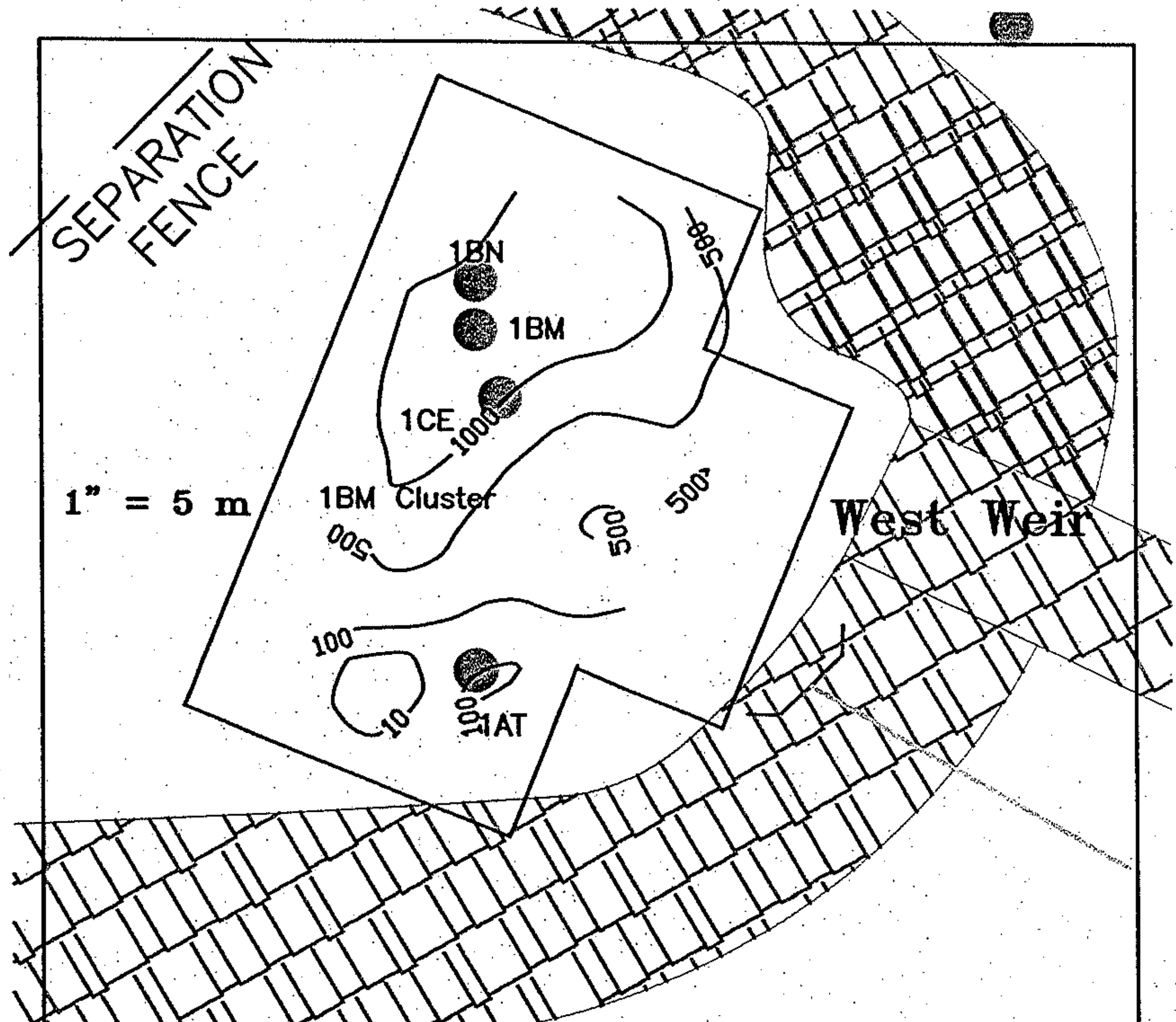


**Plymouth Infiltration Basin
January 2004 Source
Chloride Concentrations
(mg/L)**

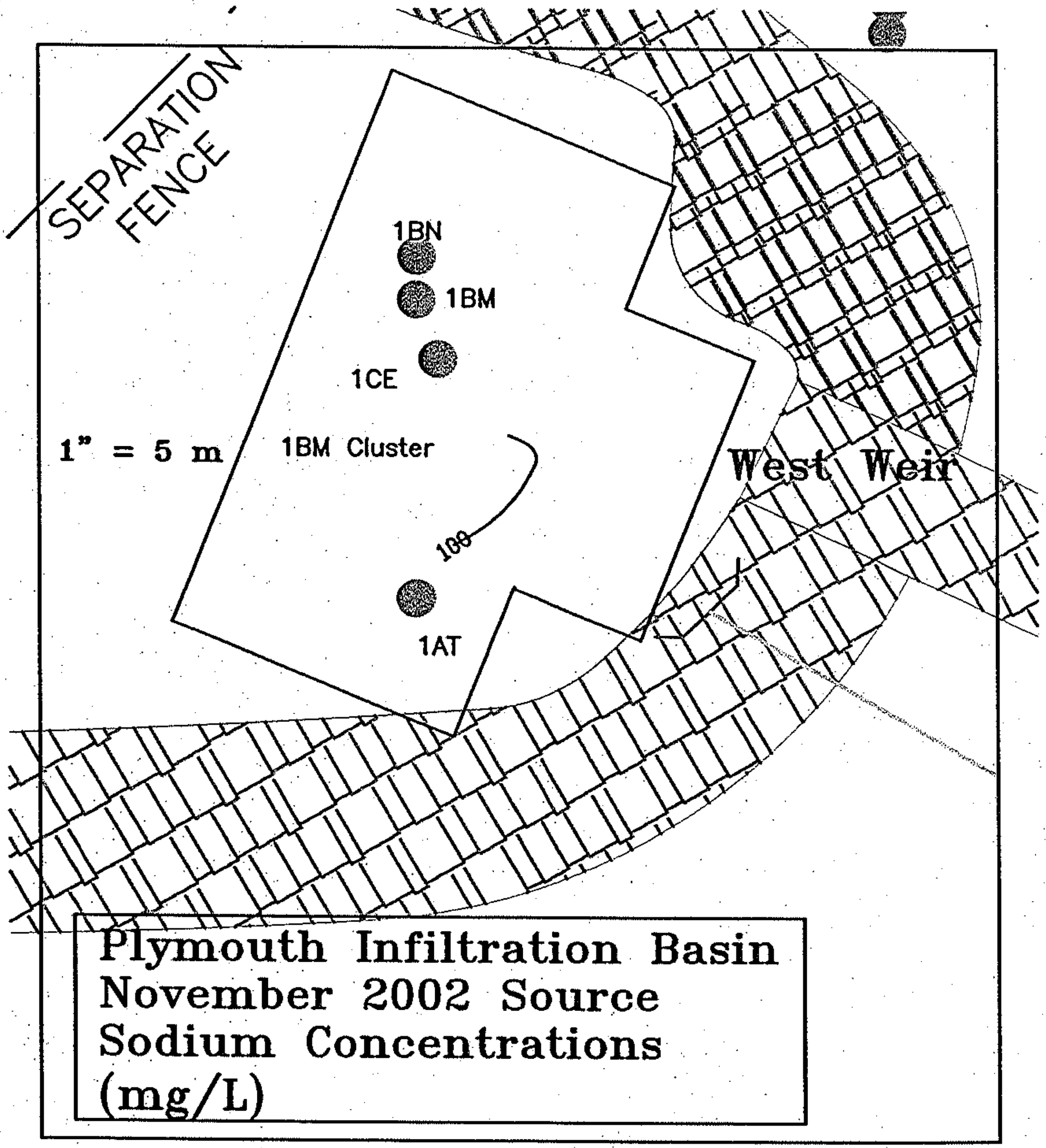


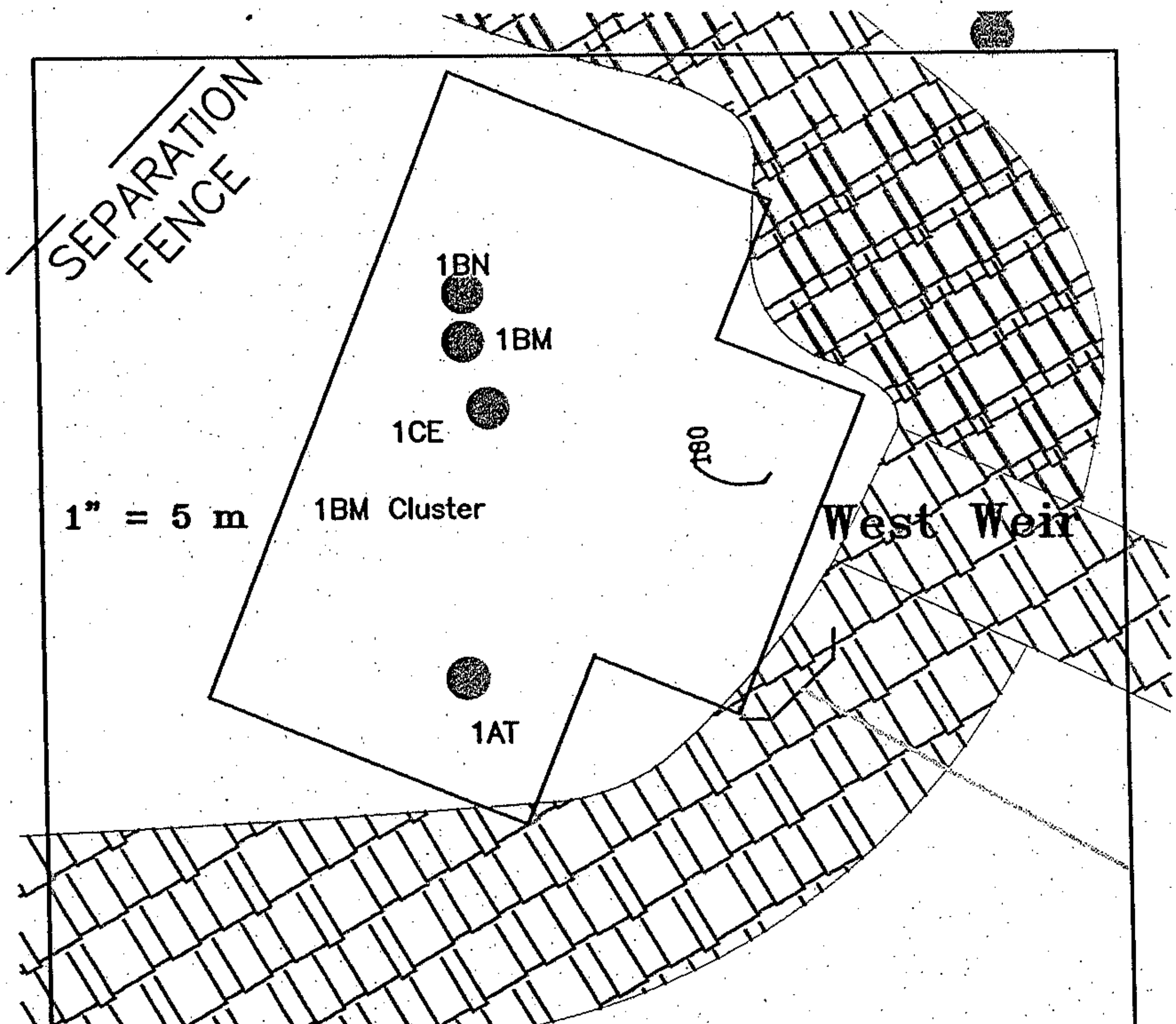
Plymouth Infiltration Basin
February 2004 Source
Chloride Concentrations
(mg/L)


SEPARATION FENCE
1" = 5 m
1BN
1BM
1CE
1BM Cluster
1AT
West Weir
-500
1000
500
100
1500
Plymouth Infiltration Basin
March 2004 Source Chloride
Concentrations (mg/L)

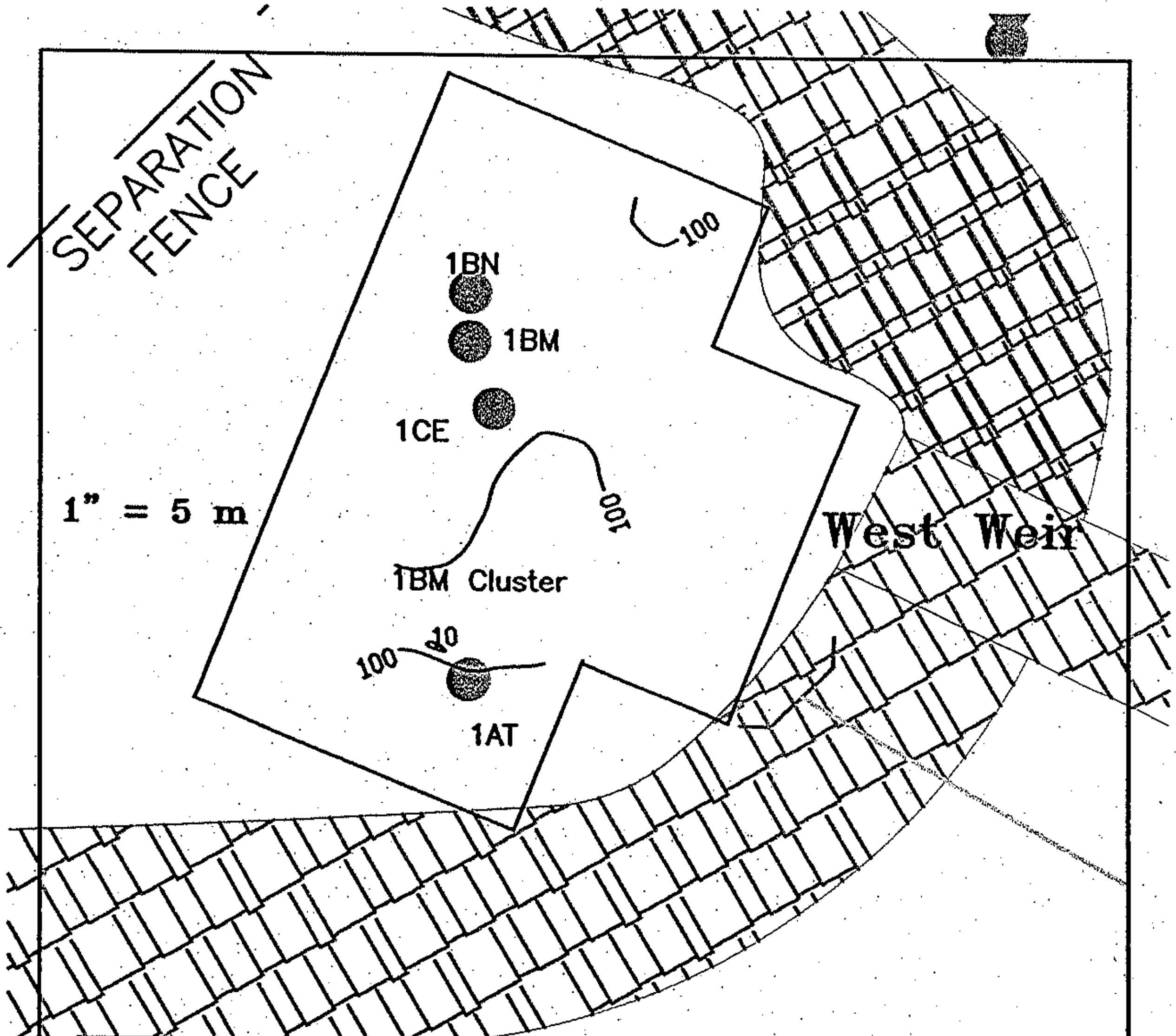


Plymouth Infiltration Basin
April 2004 Source Chloride
Concentrations (mg/L)

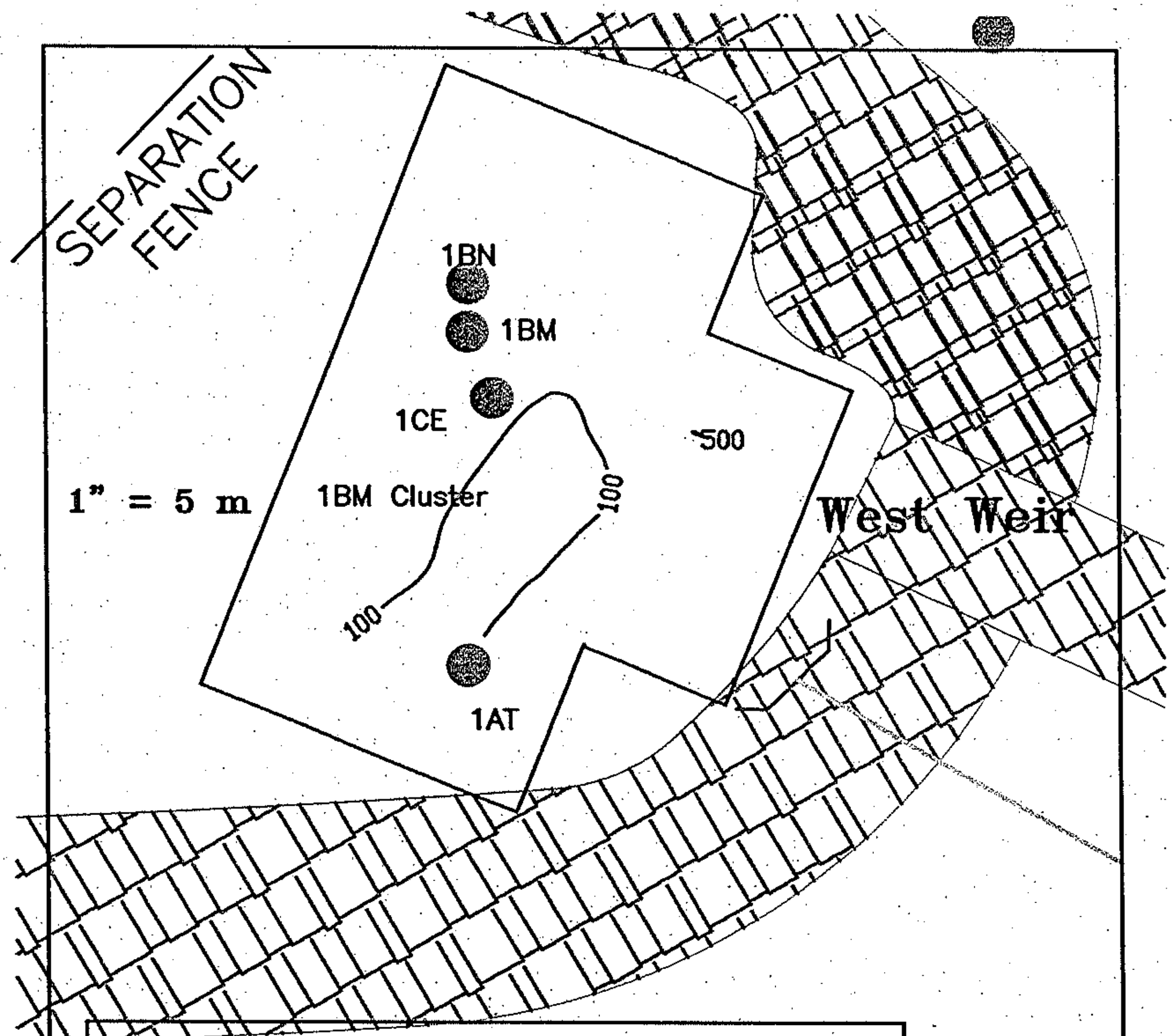

SEPARATION
FENCE
1BN
1BM
1CE
1" = 5 m
1BM Cluster
100
1AT
West Weir
Plymouth Infiltration Basin
November 2002 Source
Sodium Concentrations
(mg/L)



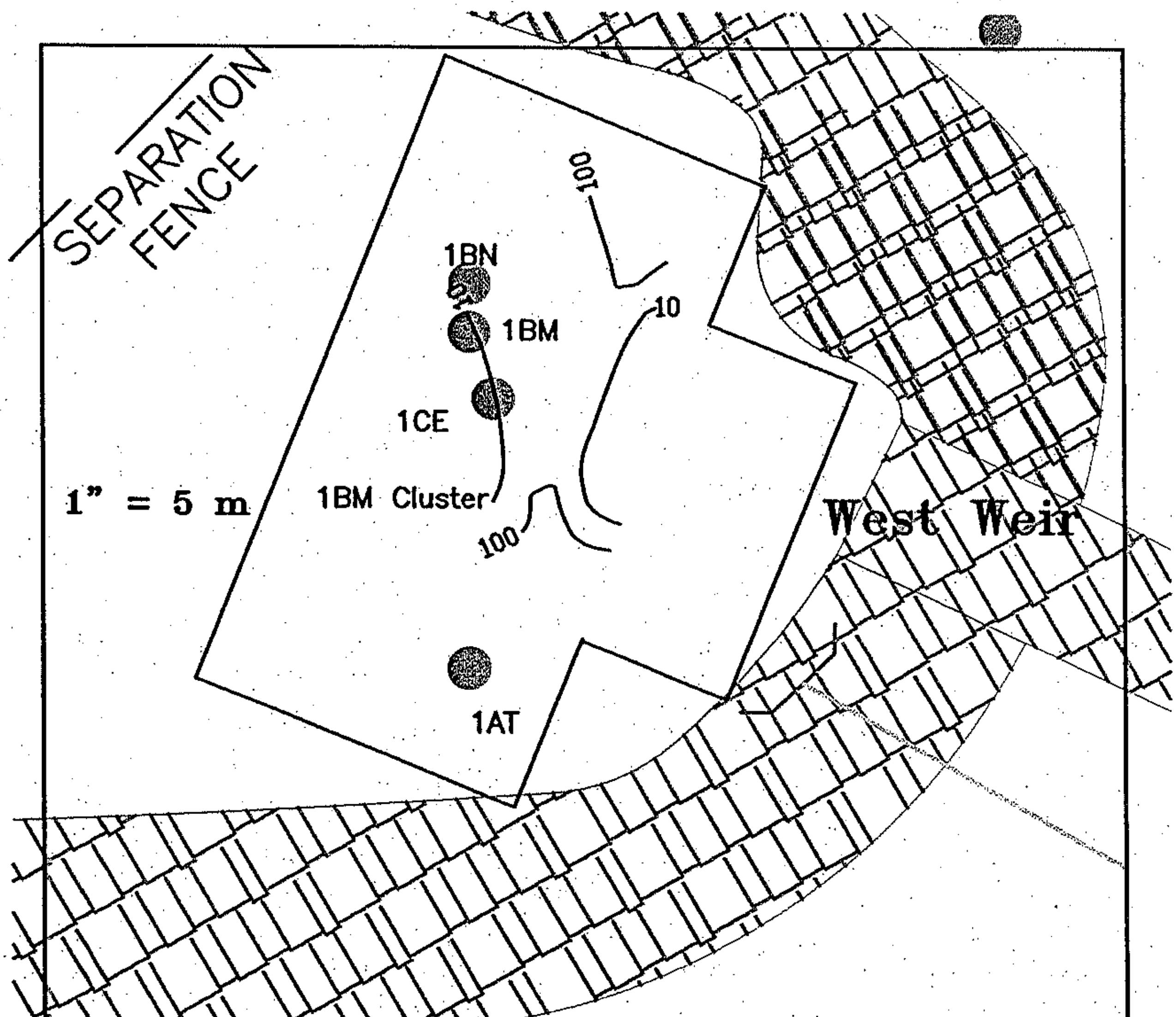
Plymouth Infiltration Basin
December 2002 Source
Sodium Concentrations
(mg/L)



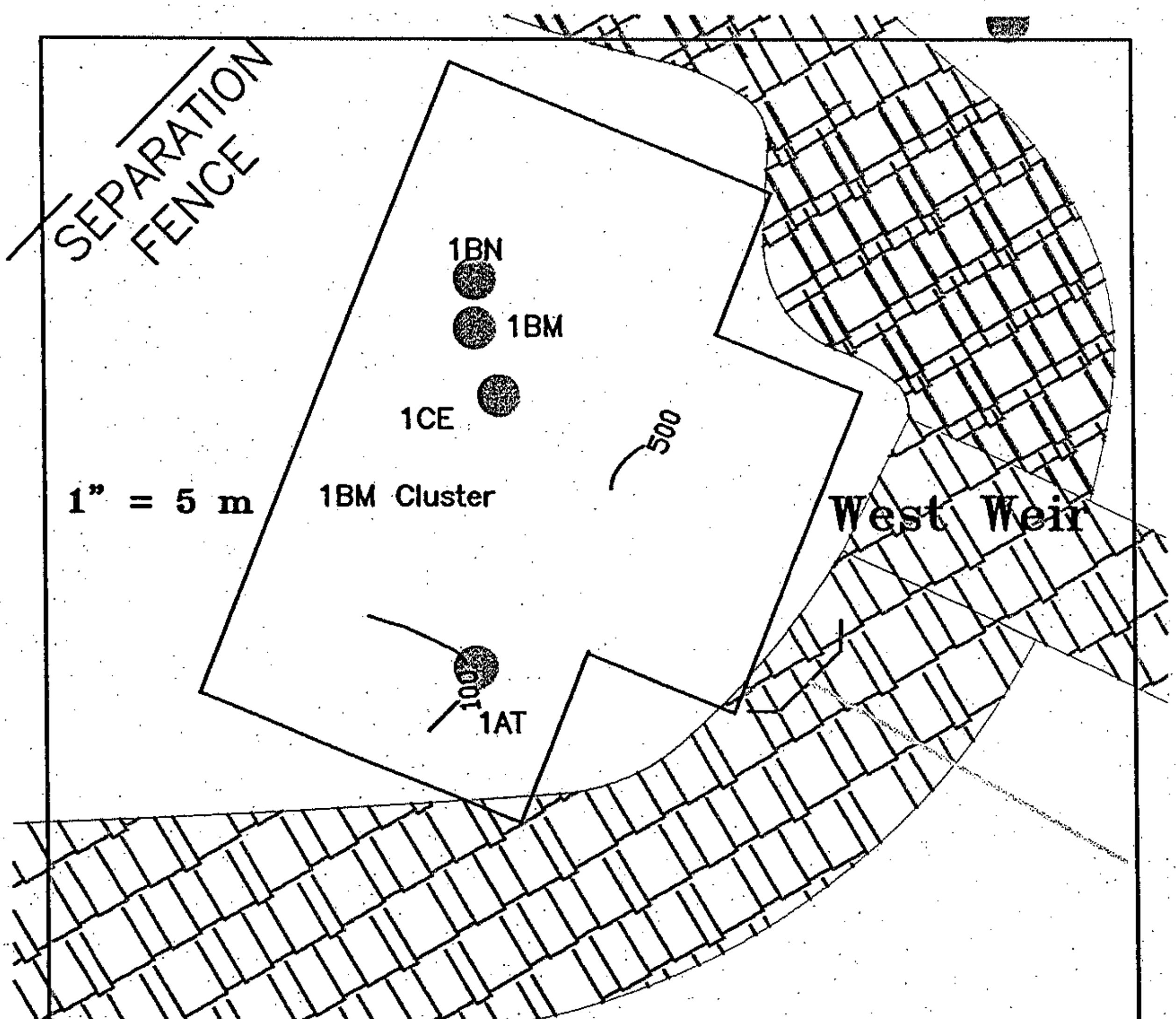
Plymouth Infiltration Basin
January 2003 Source
Sodium Concentrations
(mg/L)



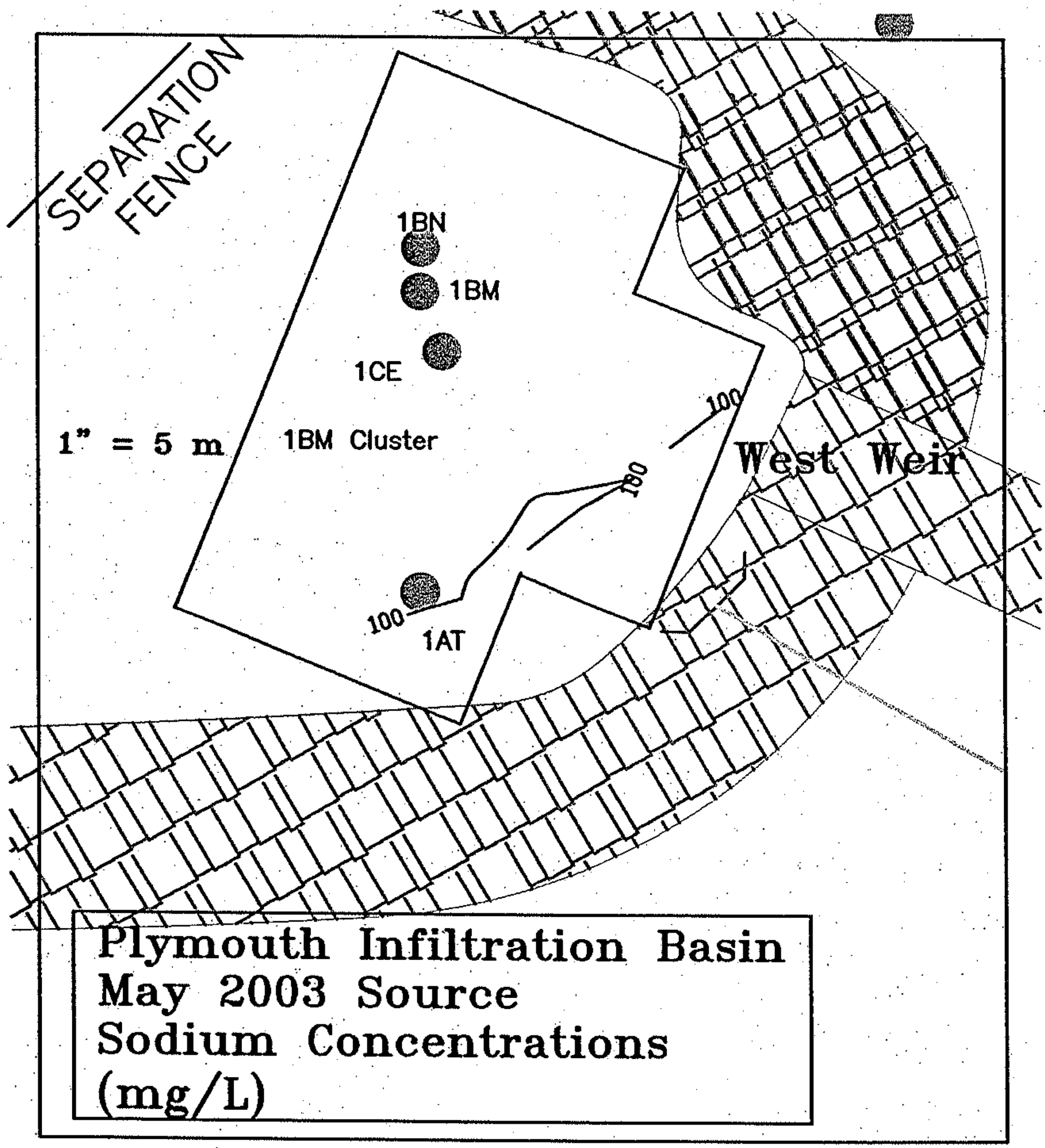
Plymouth Infiltration Basin
February 2003 Source
Sodium Concentrations
(mg/L)

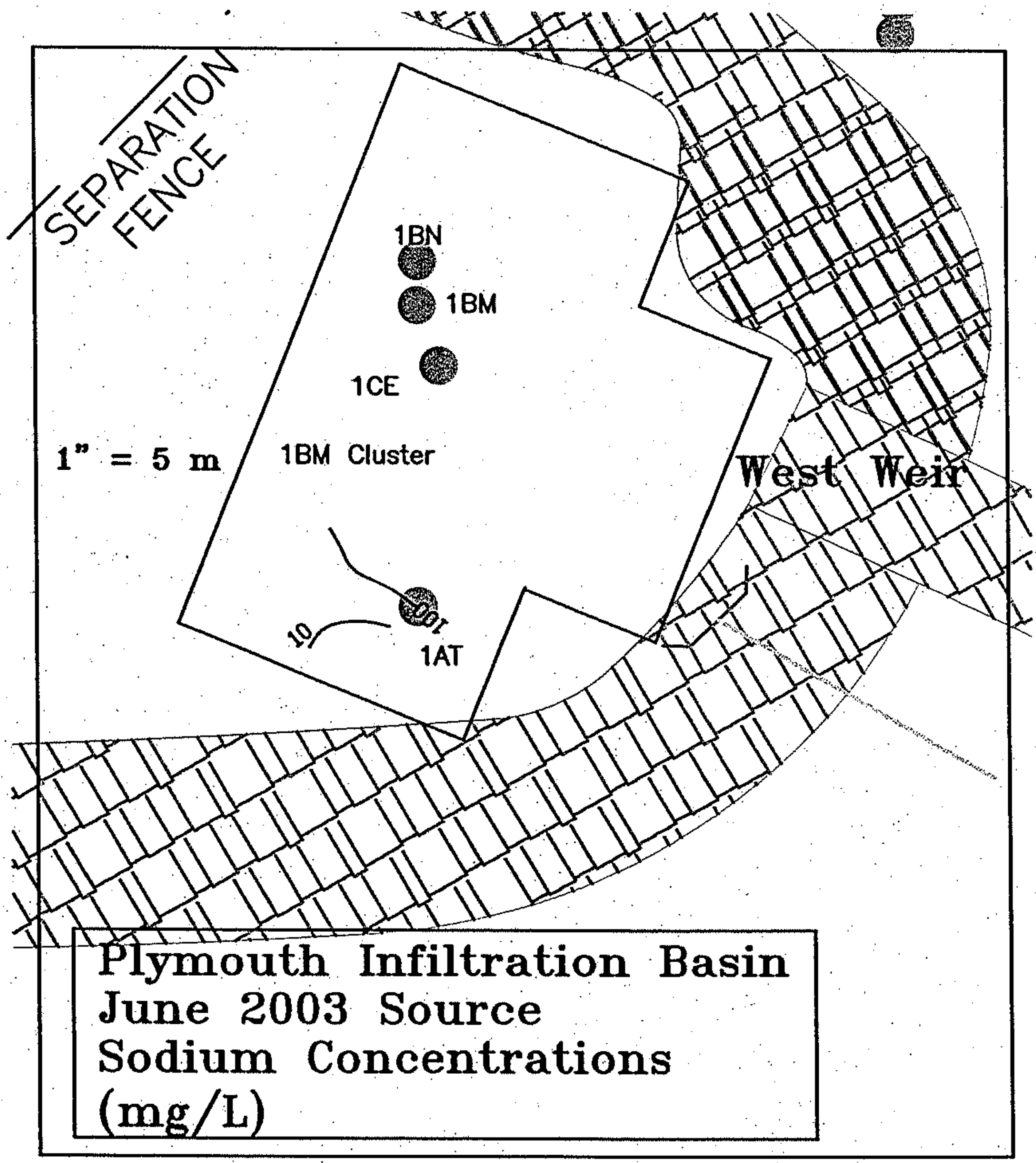


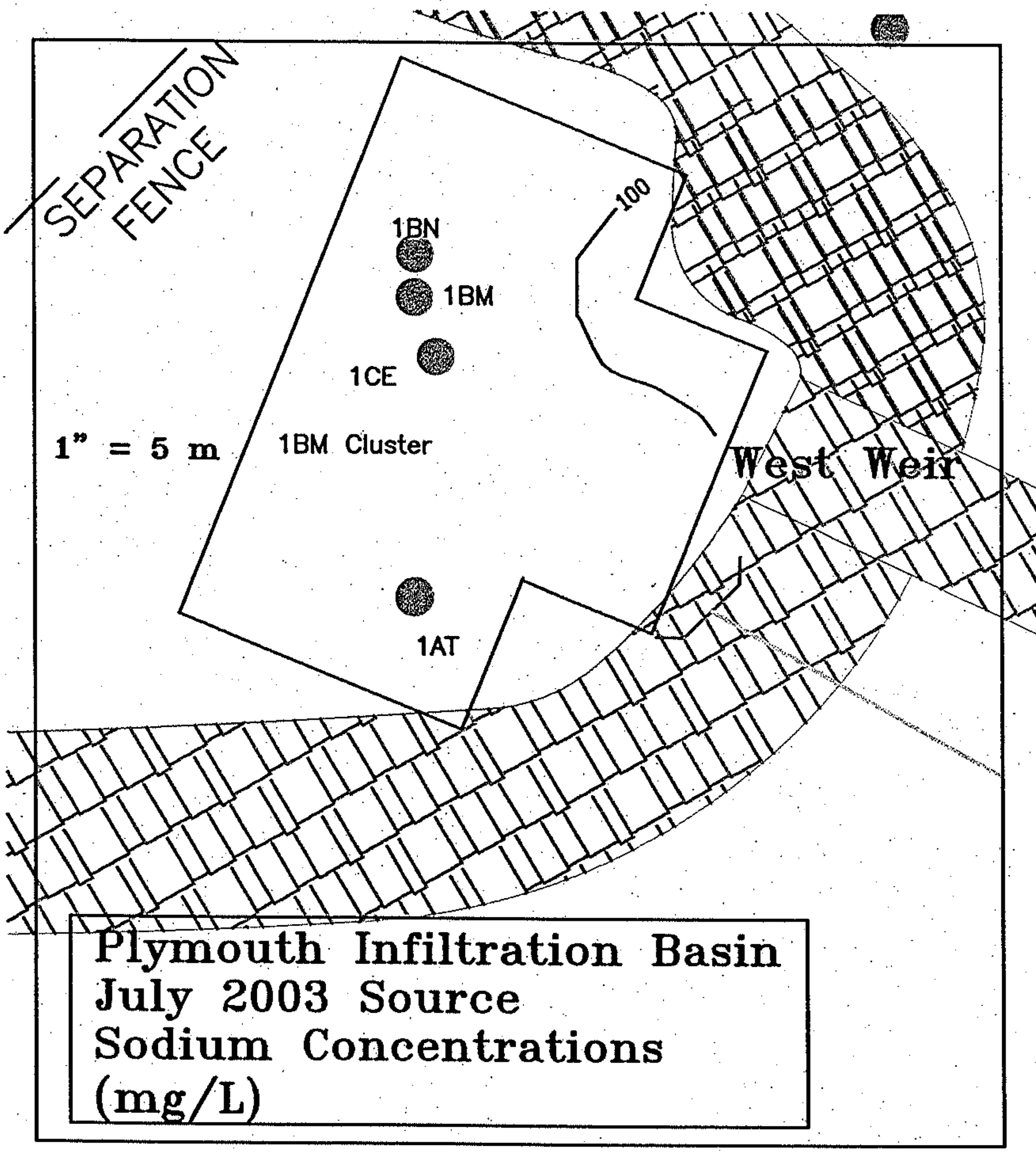
Plymouth Infiltration Basin
March 2003 Source
Sodium Concentrations
(mg/L)

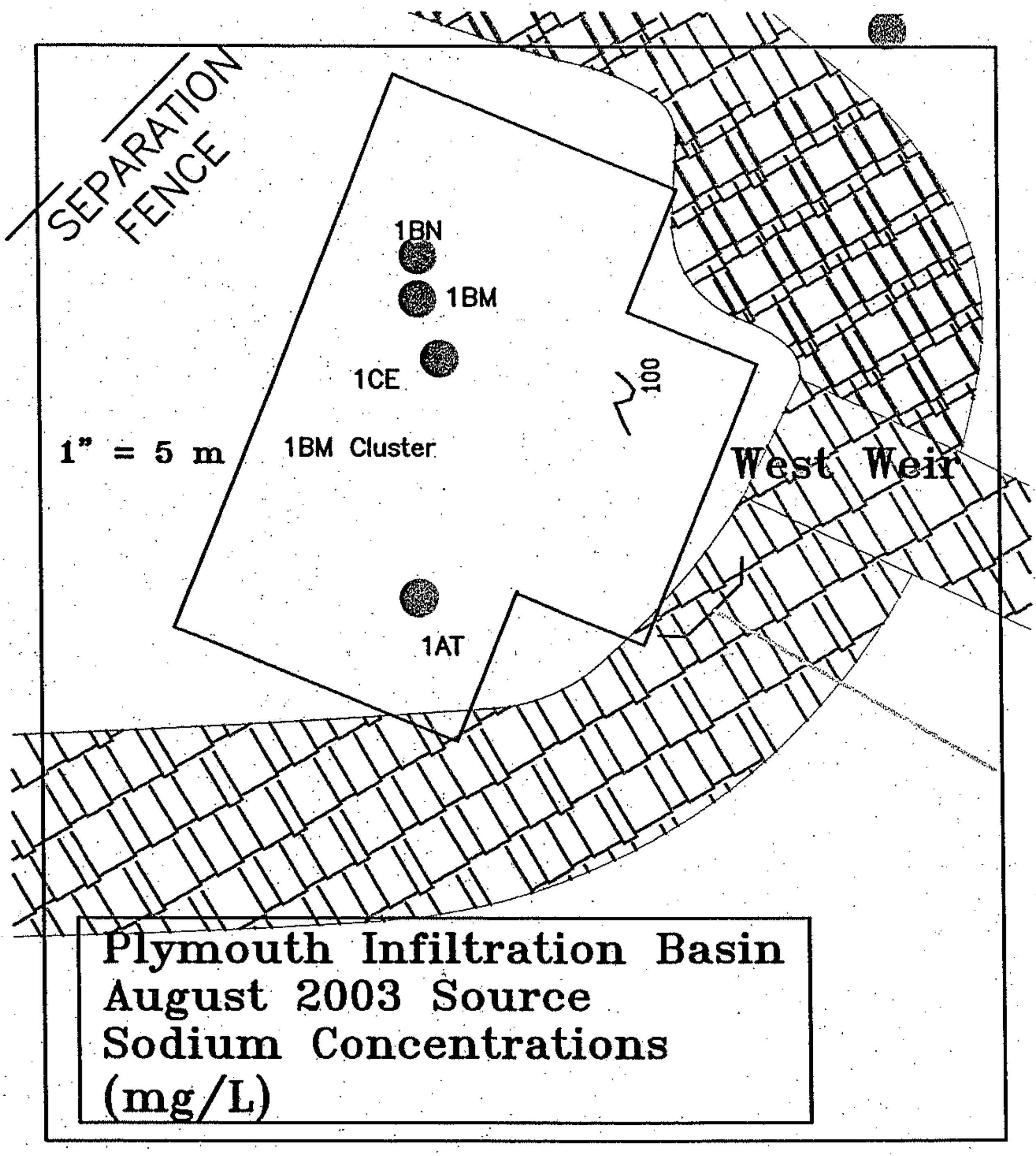


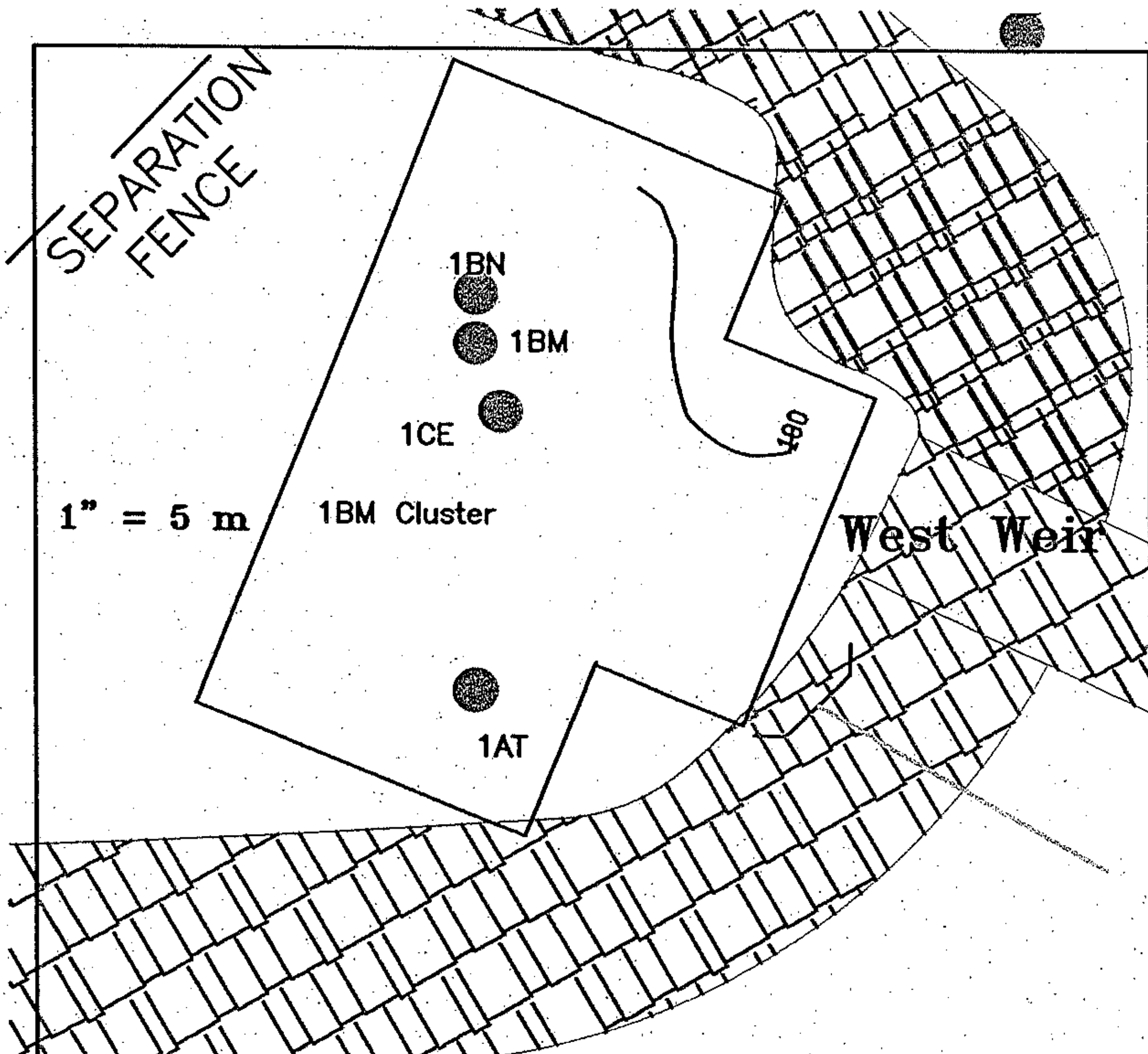
Plymouth Infiltration Basin
April 2003 Source
Sodium Concentrations
(mg/L)


SEPARATION FENCE
1BN
1BM
1CE
1" = 5 m
1BM Cluster
100
180
West Weir
100
1AT
Plymouth Infiltration Basin
May 2003 Source
Sodium Concentrations
(mg/L)

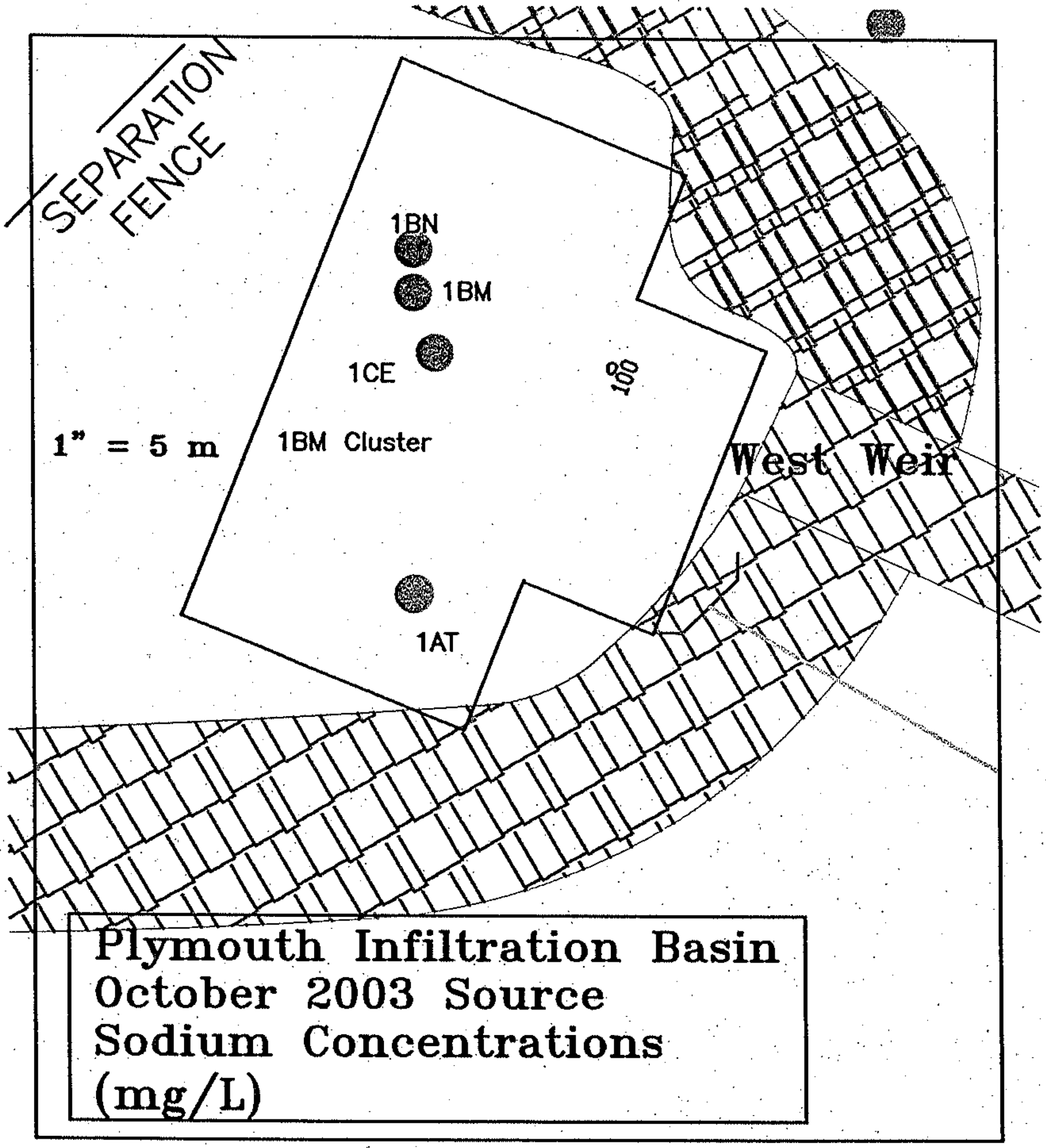

SEPARATION FENCE
1BN
1BM
1CE
1" = 5 m
1BM Cluster
West Weir
10
100
1AT
Plymouth Infiltration Basin
June 2003 Source
Sodium Concentrations
(mg/L)

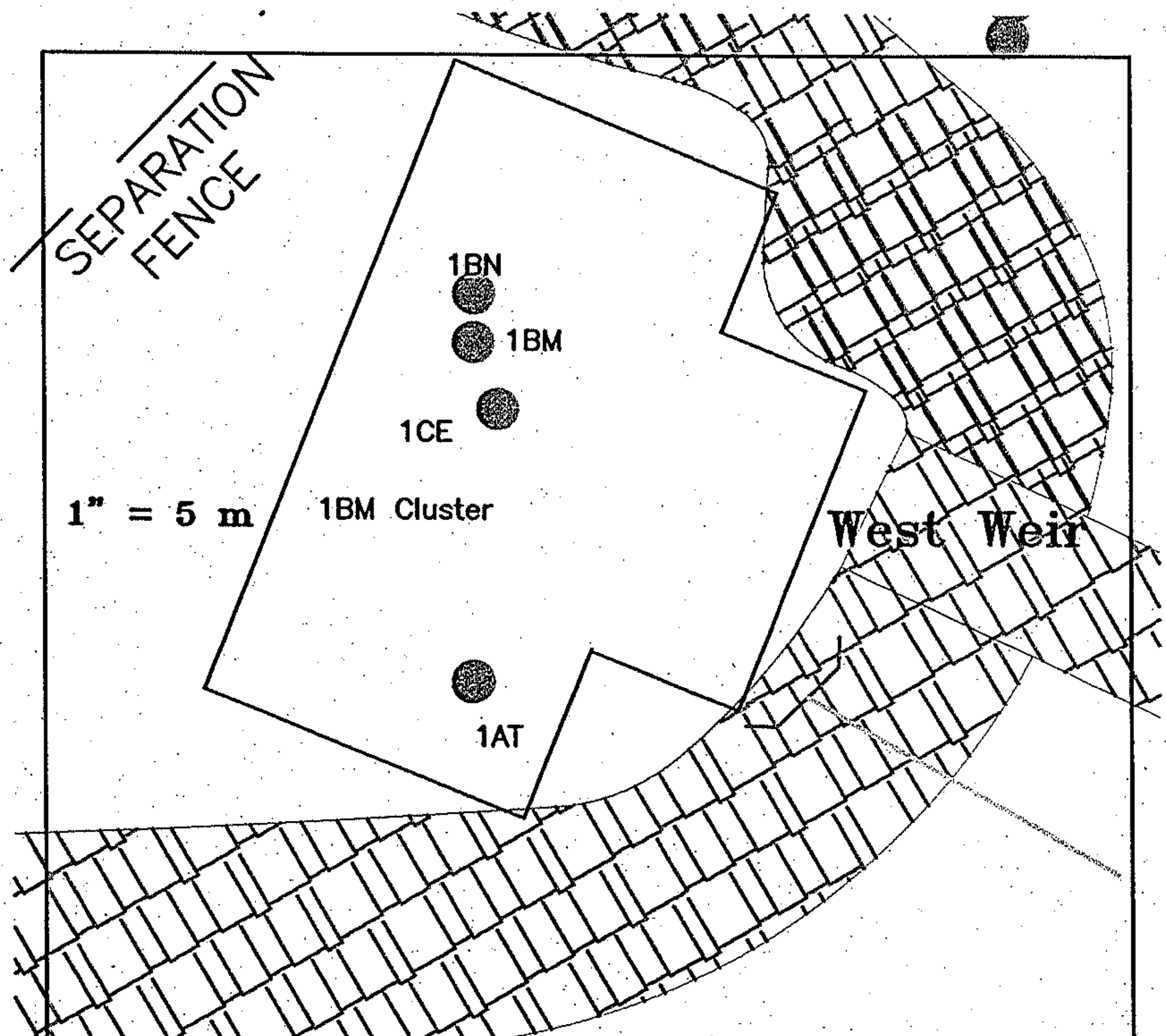

SEPARATION FENCE
1BN
1BM
1CE
1" = 5 m
1BM Cluster
100
West Weir
1AT
Plymouth Infiltration Basin
July 2003 Source
Sodium Concentrations
(mg/L)


SEPARATION
FENCE
1BN
1BM
1CE
1" = 5 m
1BM Cluster
100
West Weir
1AT
Plymouth Infiltration Basin
August 2003 Source
Sodium Concentrations
(mg/L)

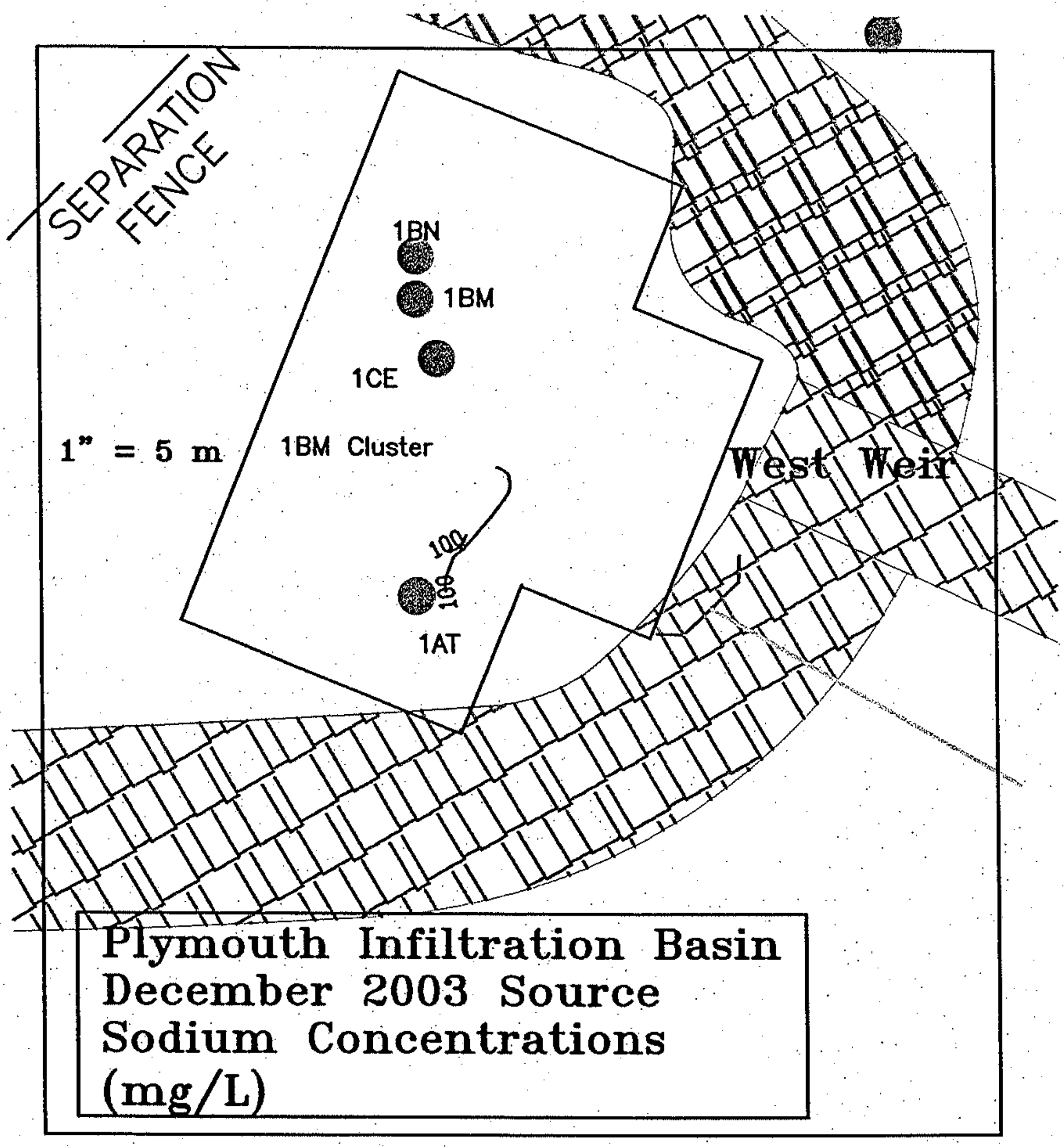


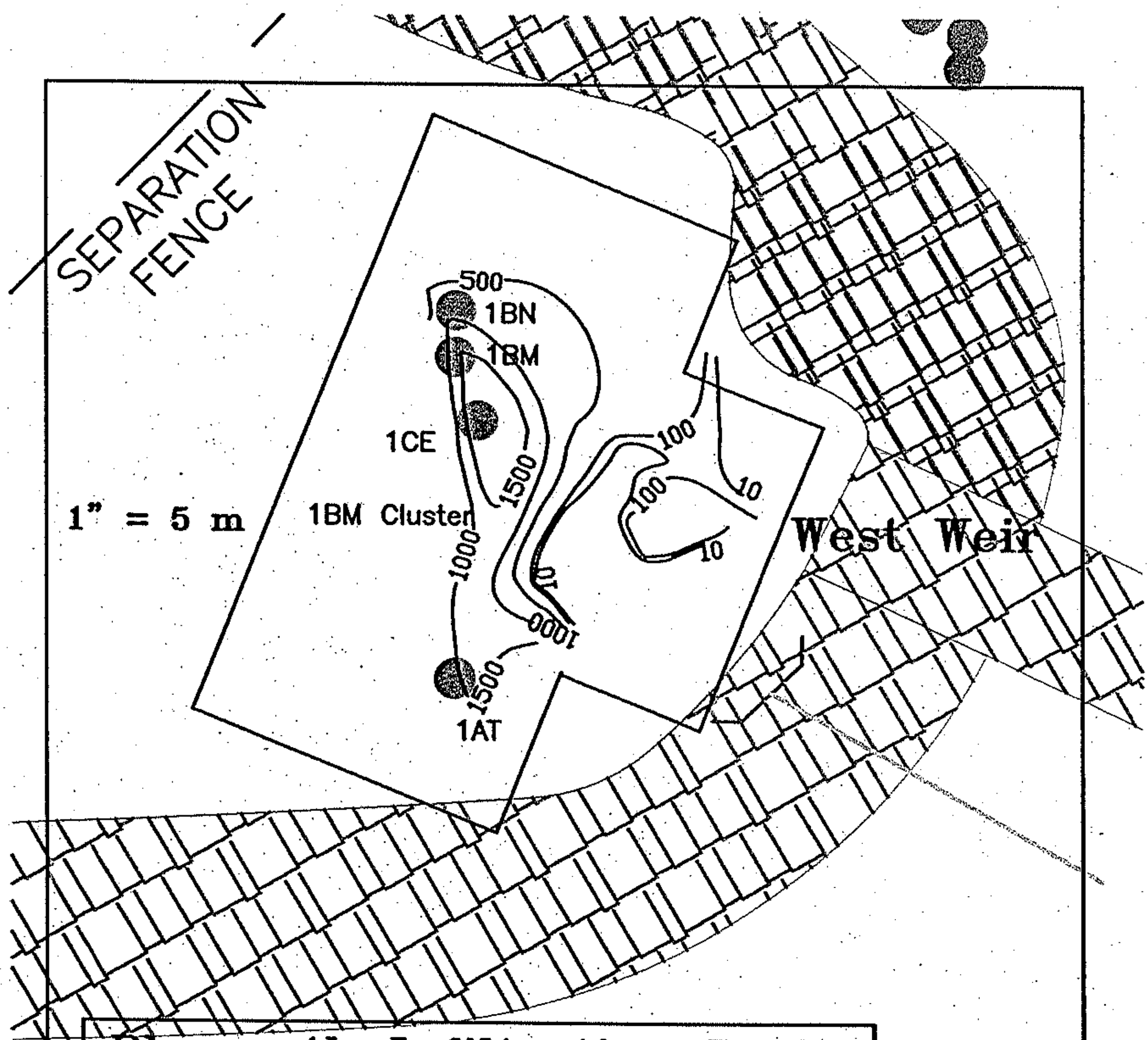
Plymouth Infiltration Basin
September 2003 Source
Sodium Concentrations
(mg/L)


SEPARATION FENCE
1BN
1BM
1CE
1" = 5 m
1BM Cluster
100
1AT
West Weir
Plymouth Infiltration Basin
October 2003 Source
Sodium Concentrations
(mg/L)

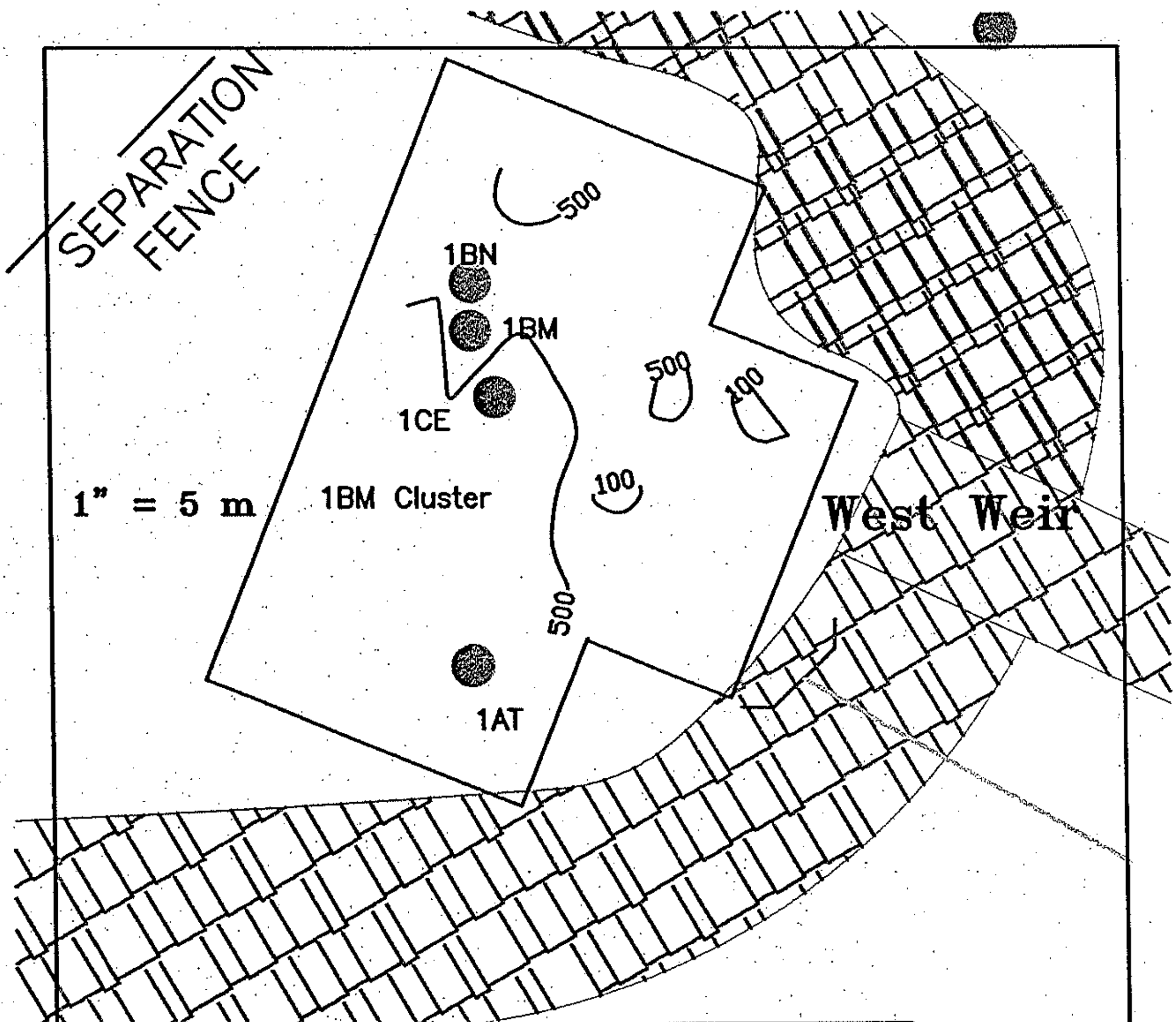


Plymouth Infiltration Basin
November 2003 Source
Sodium Concentrations
(mg/L)

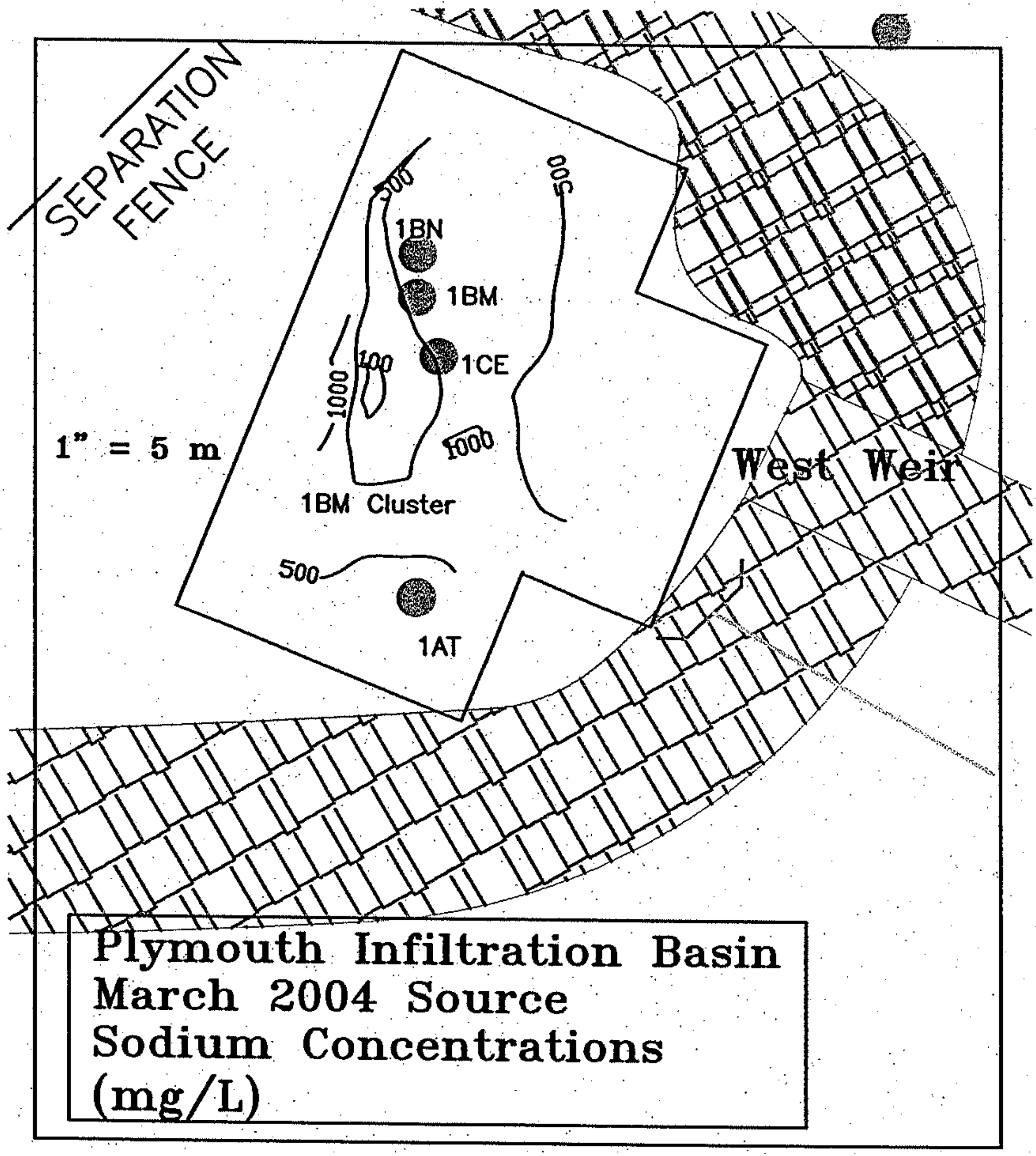

SEPARATION
FENCE
1BN
1BM
1CE
1" = 5 m
1BM Cluster
West Weir
100
100
1AT
Plymouth Infiltration Basin
December 2003 Source
Sodium Concentrations
(mg/L)



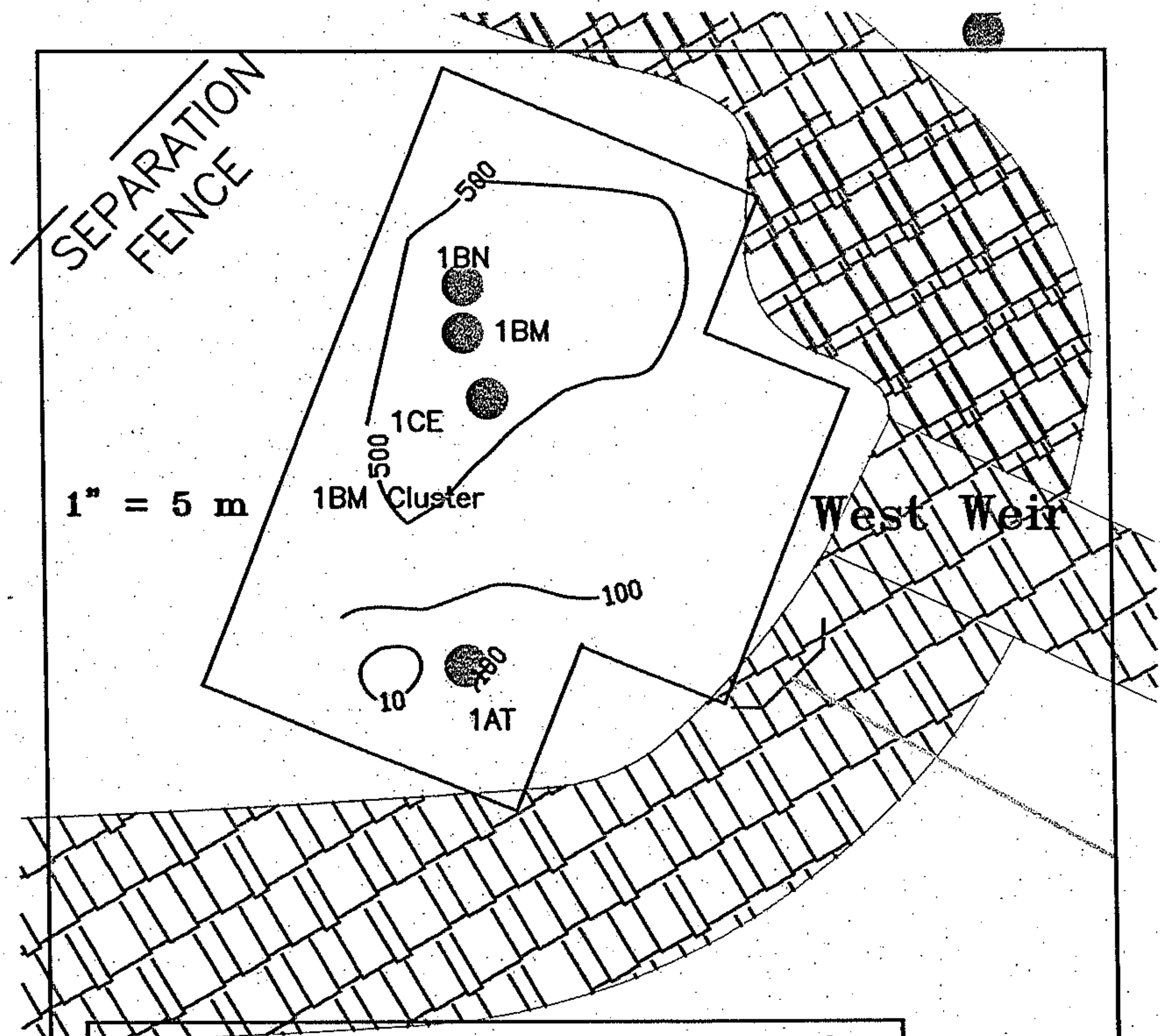
Plymouth Infiltration Basin
January 2004 Source
Sodium Concentrations
(mg/L)



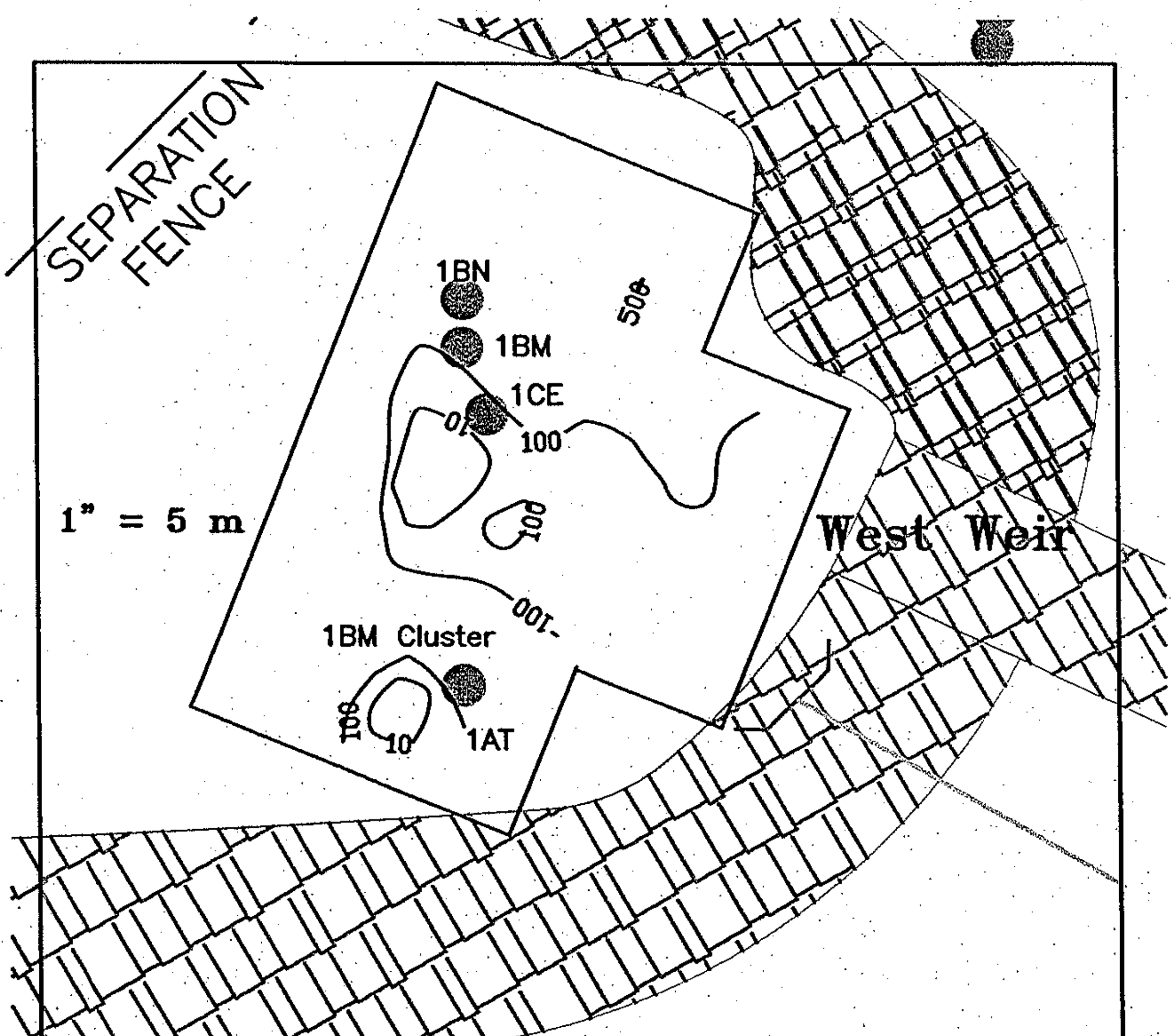
Plymouth Infiltration Basin
February 2004 Source
Sodium Concentrations
(mg/L)



Plymouth Infiltration Basin
March 2004 Source
Sodium Concentrations
(mg/L)

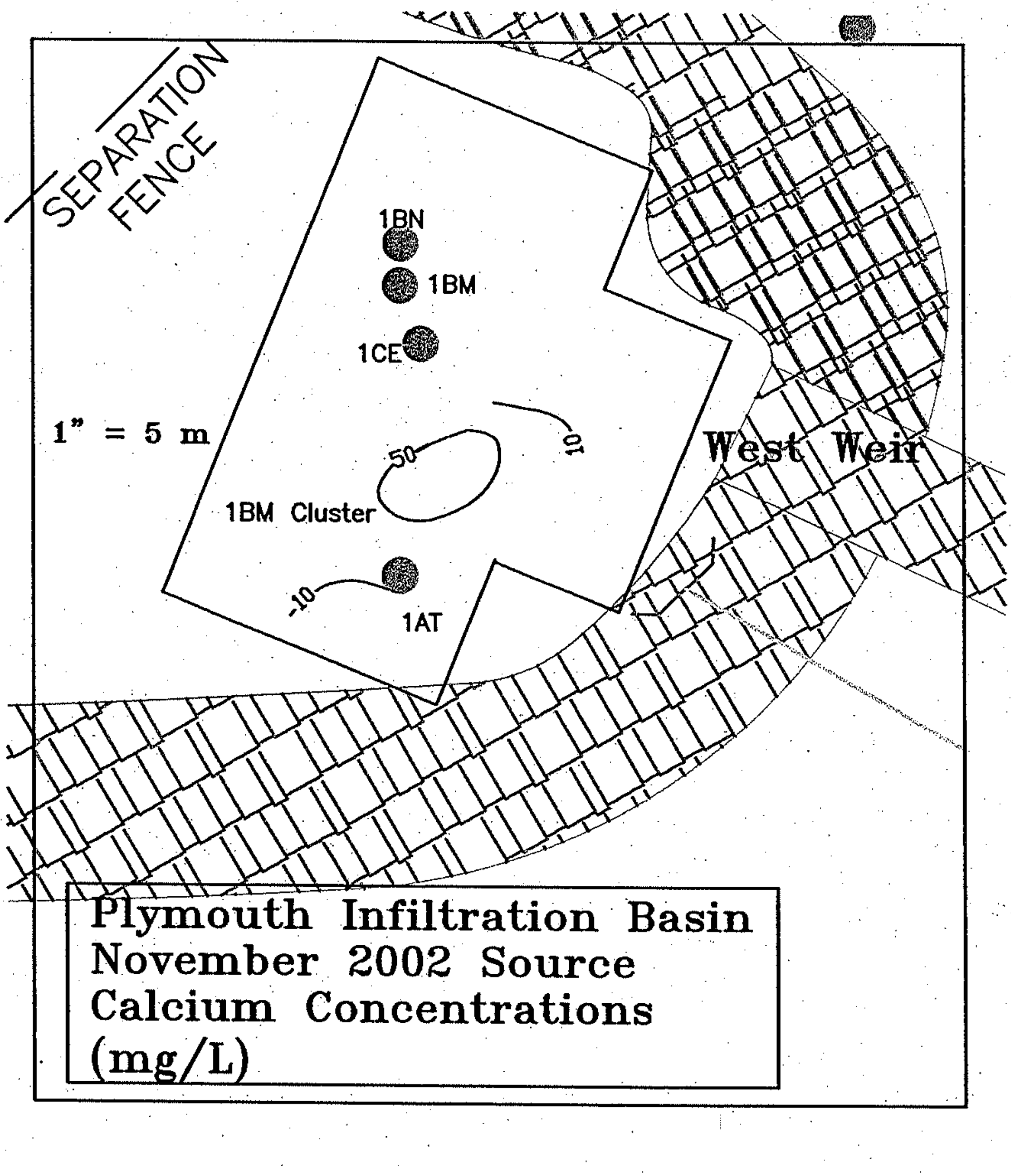


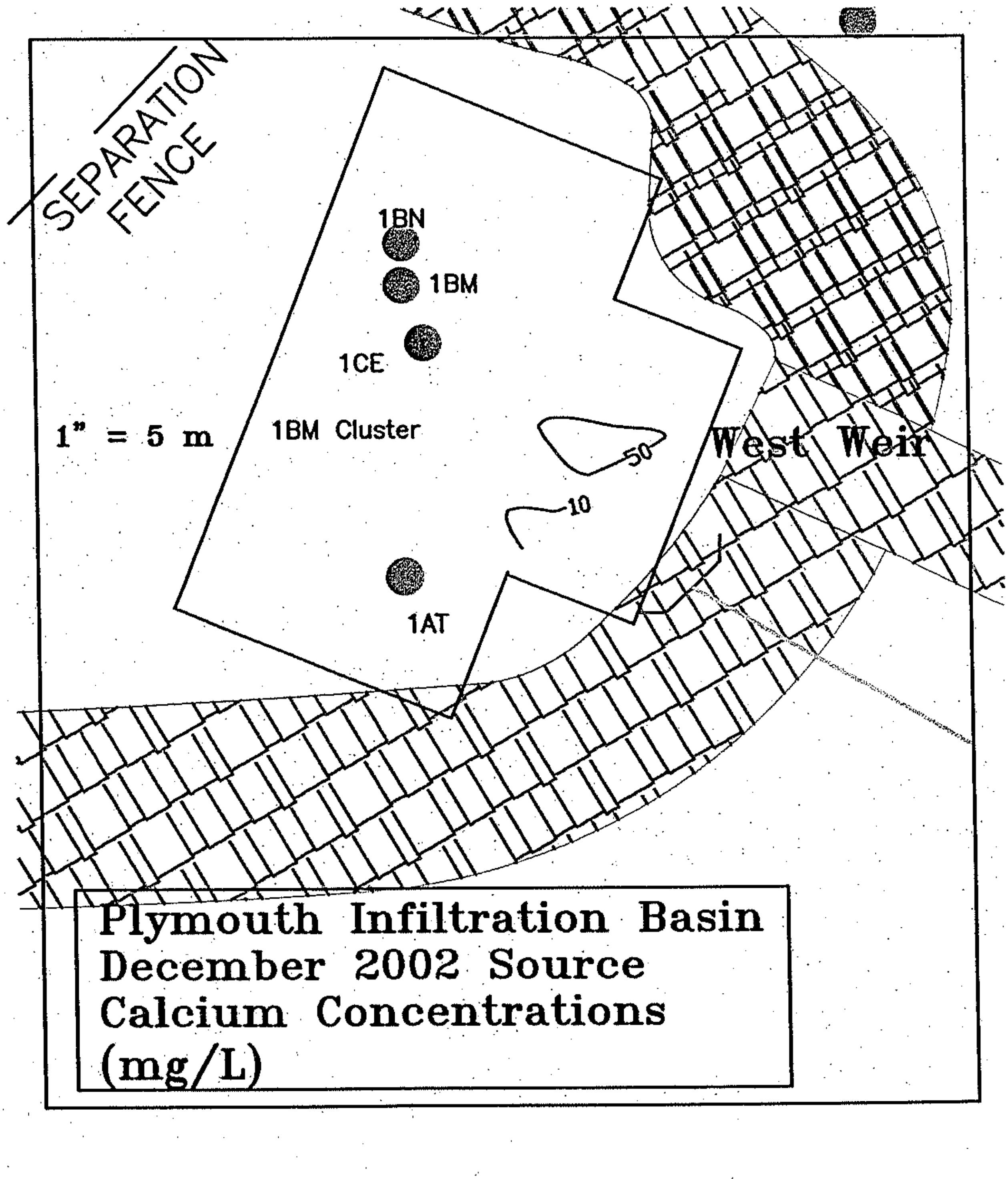
Plymouth Infiltration Basin
April 2004 Source
Sodium Concentrations
(mg/L)

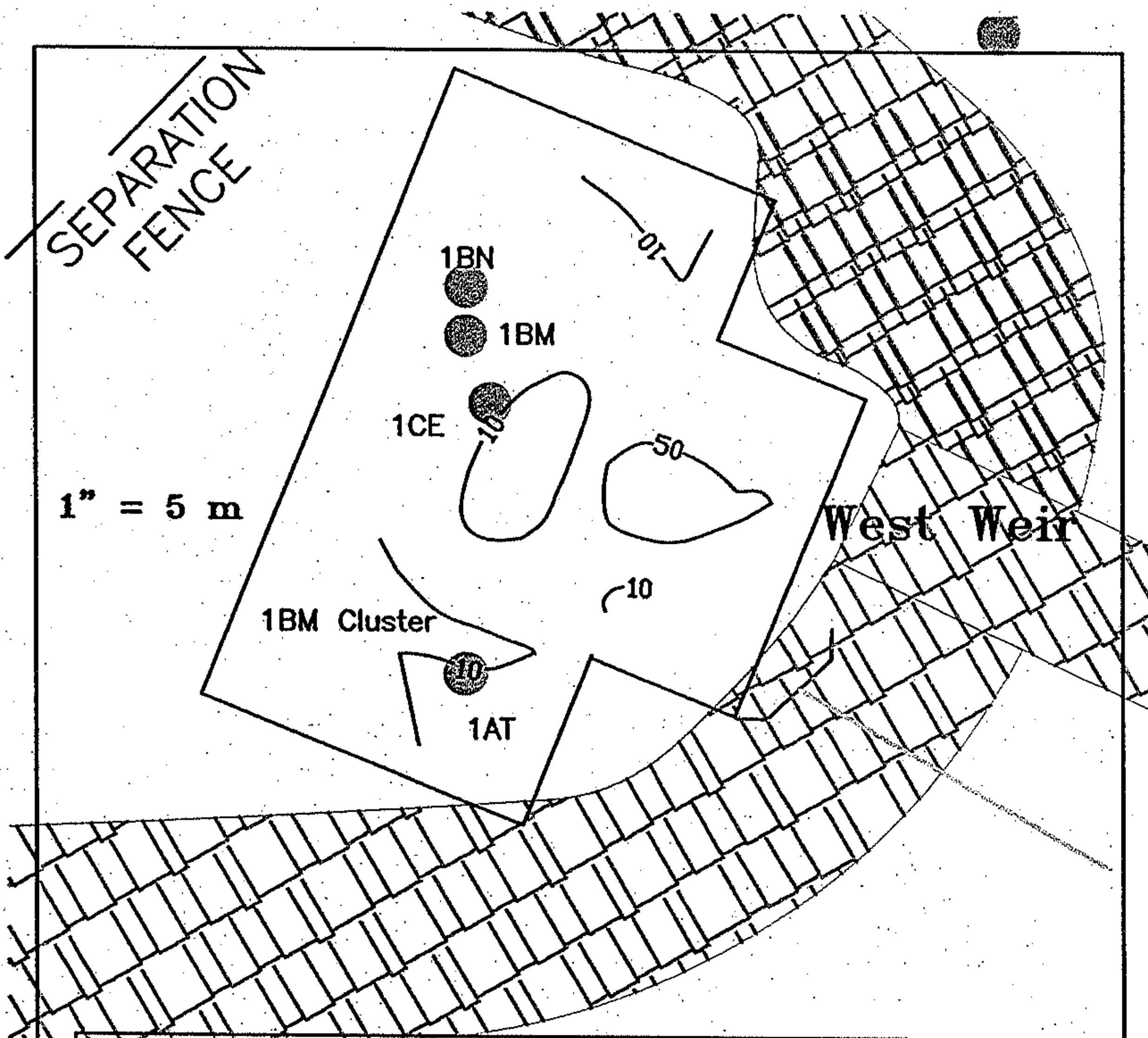


Plymouth Infiltration Basin
May 2004 Source
Sodium Concentrations
(mg/L)

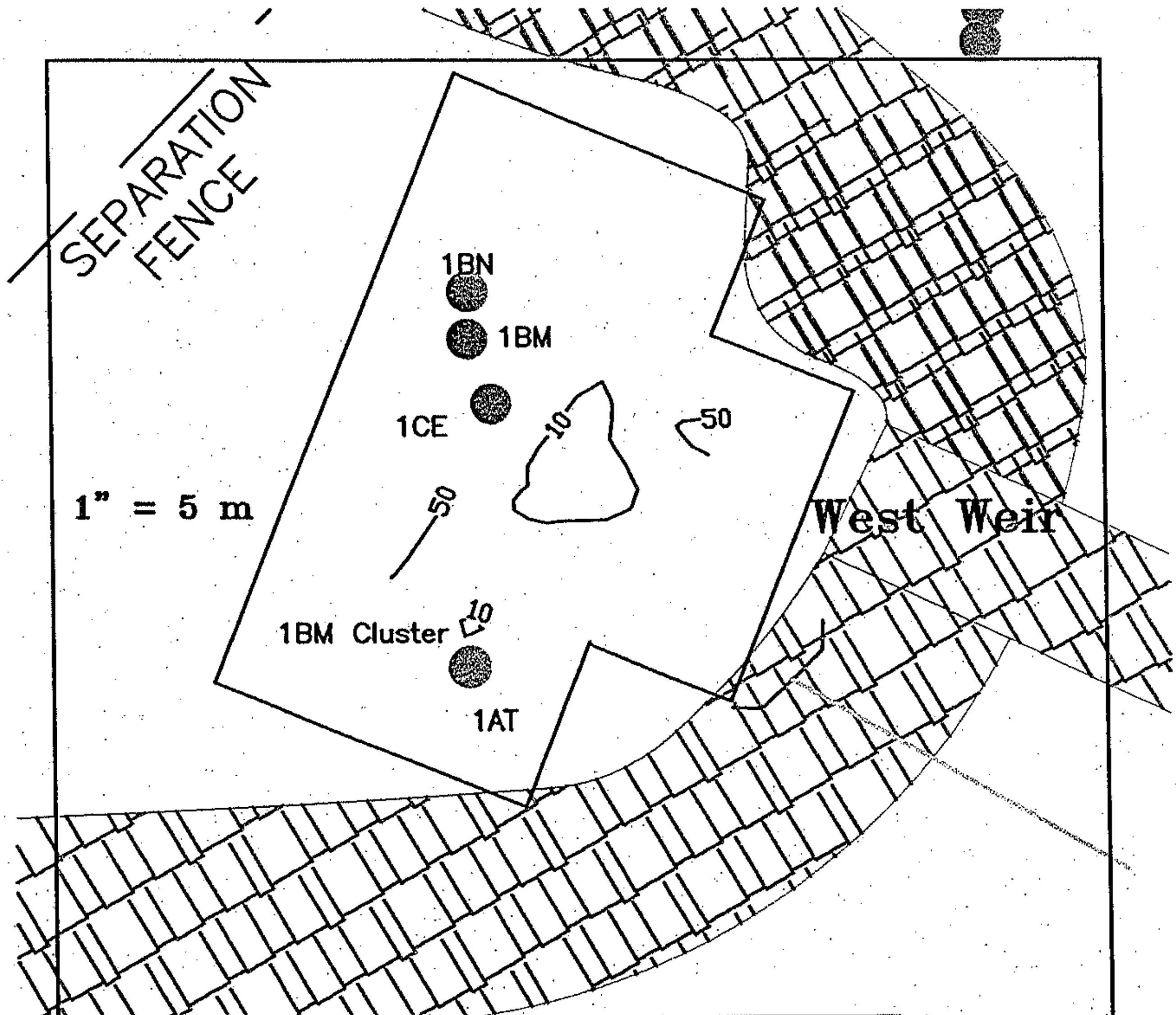
APPENDIX K
Calcium Source Isopleths, November 2002 – May 2004


SEPARATION FENCE
1BN
1BM
1CE
1" = 5 m
10
50
1BM Cluster
-10
1AT
West Weir
Plymouth Infiltration Basin
November 2002 Source
Calcium Concentrations
(mg/L)

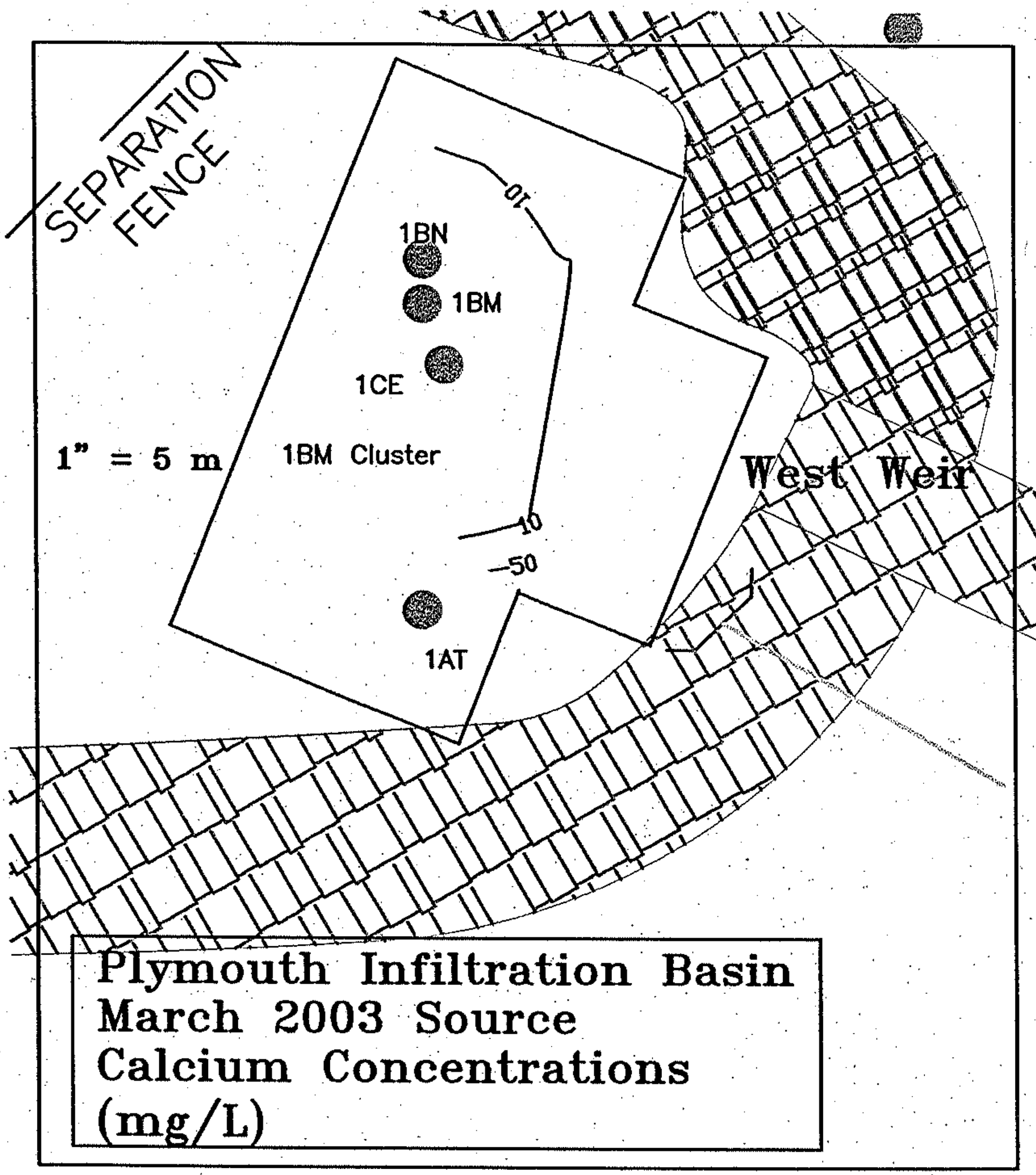

SEPARATION FENCE
1" = 5 m
1BN
1BM
1CE
1BM Cluster
50
10
1AT
West Weir
Plymouth Infiltration Basin
December 2002 Source
Calcium Concentrations
(mg/L)



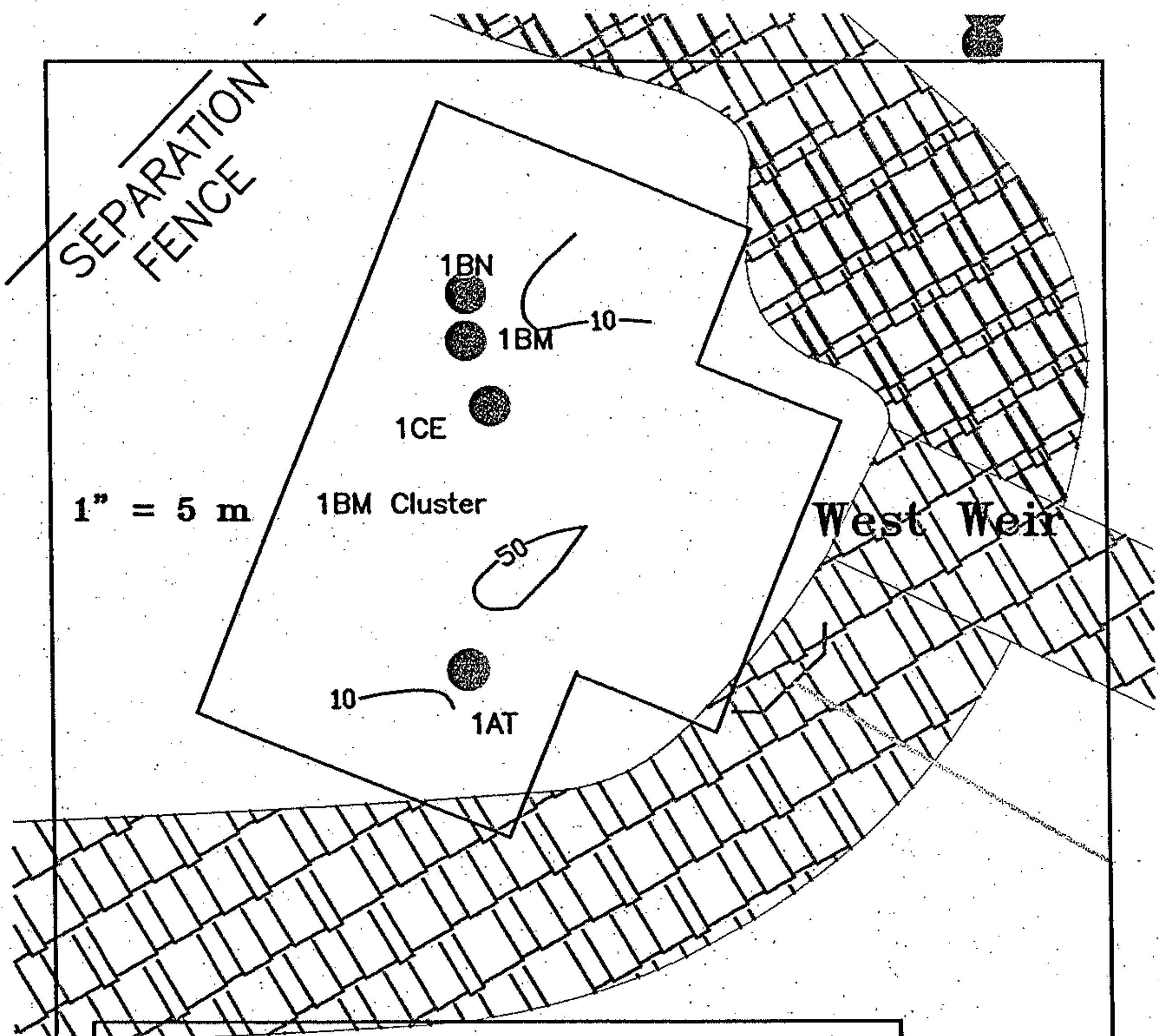
Plymouth Infiltration Basin
January 2003 Source
Calcium Concentrations
(mg/L)



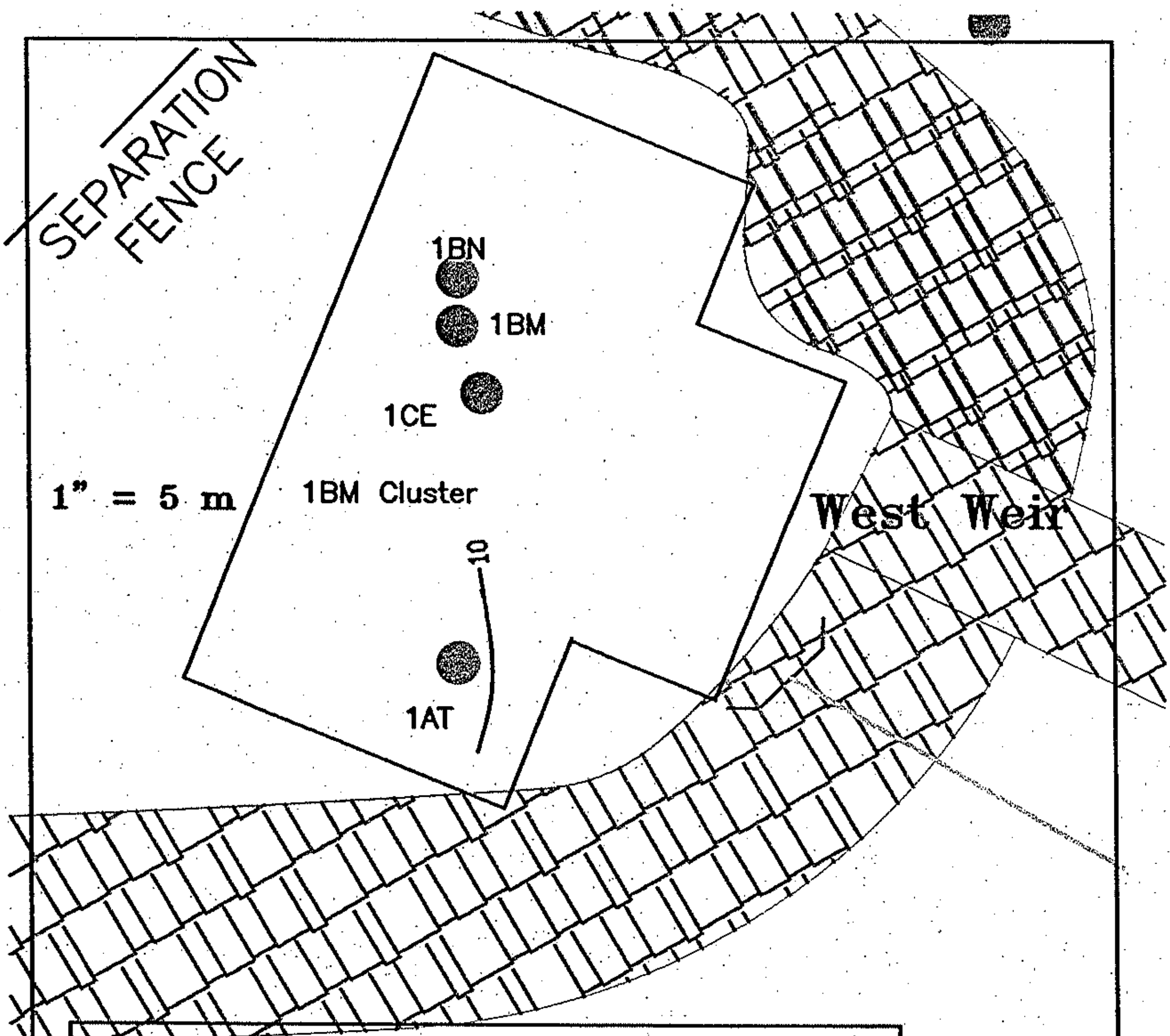
Plymouth Infiltration Basin
February 2003 Source
Calcium Concentrations
(mg/L)



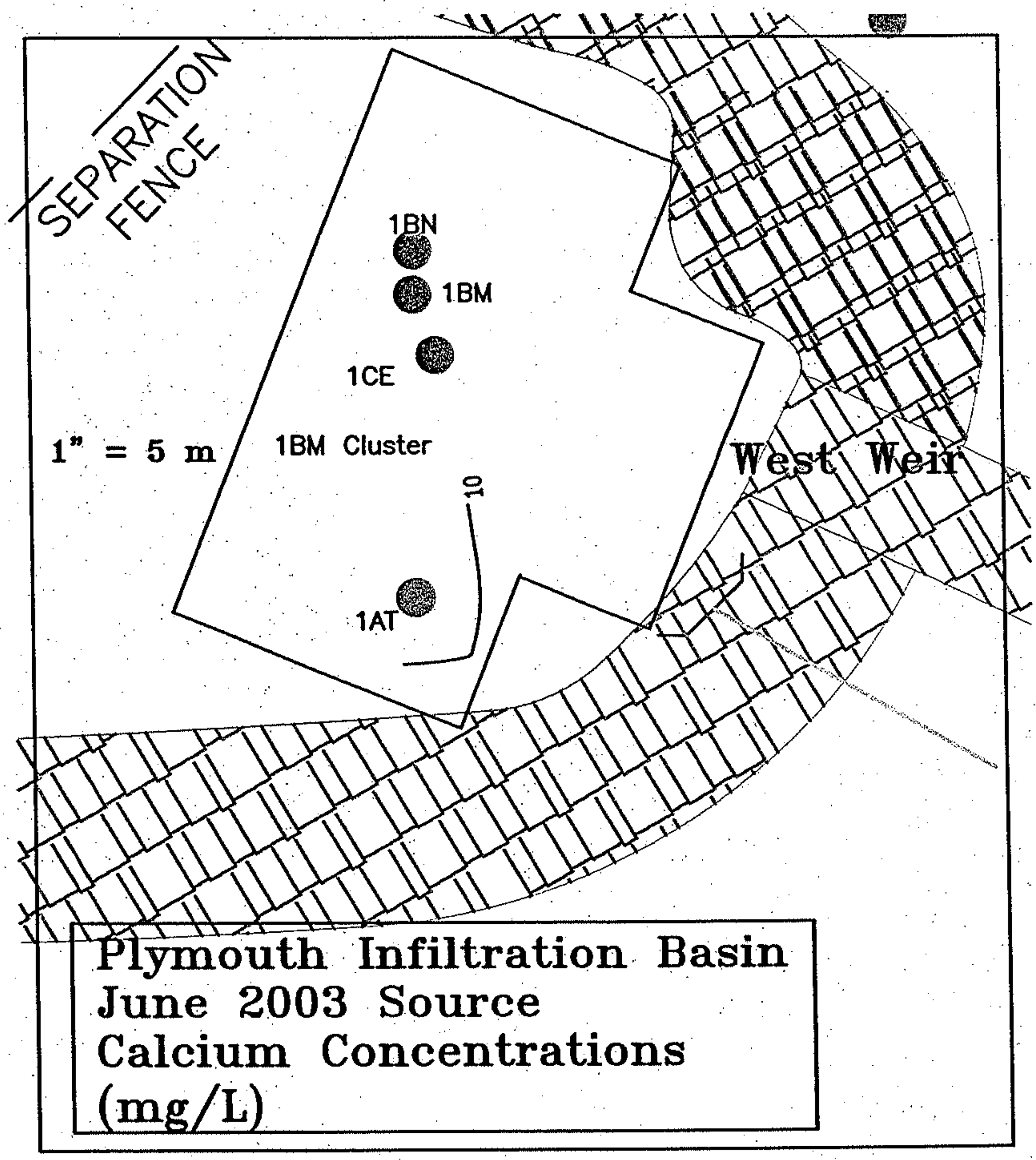
SEPARATION FENCE
1" = 5 m
1BM Cluster
1BN
1BM
1CE
1AT
10
10
50
West Weir
Plymouth Infiltration Basin
March 2003 Source
Calcium Concentrations
(mg/L)

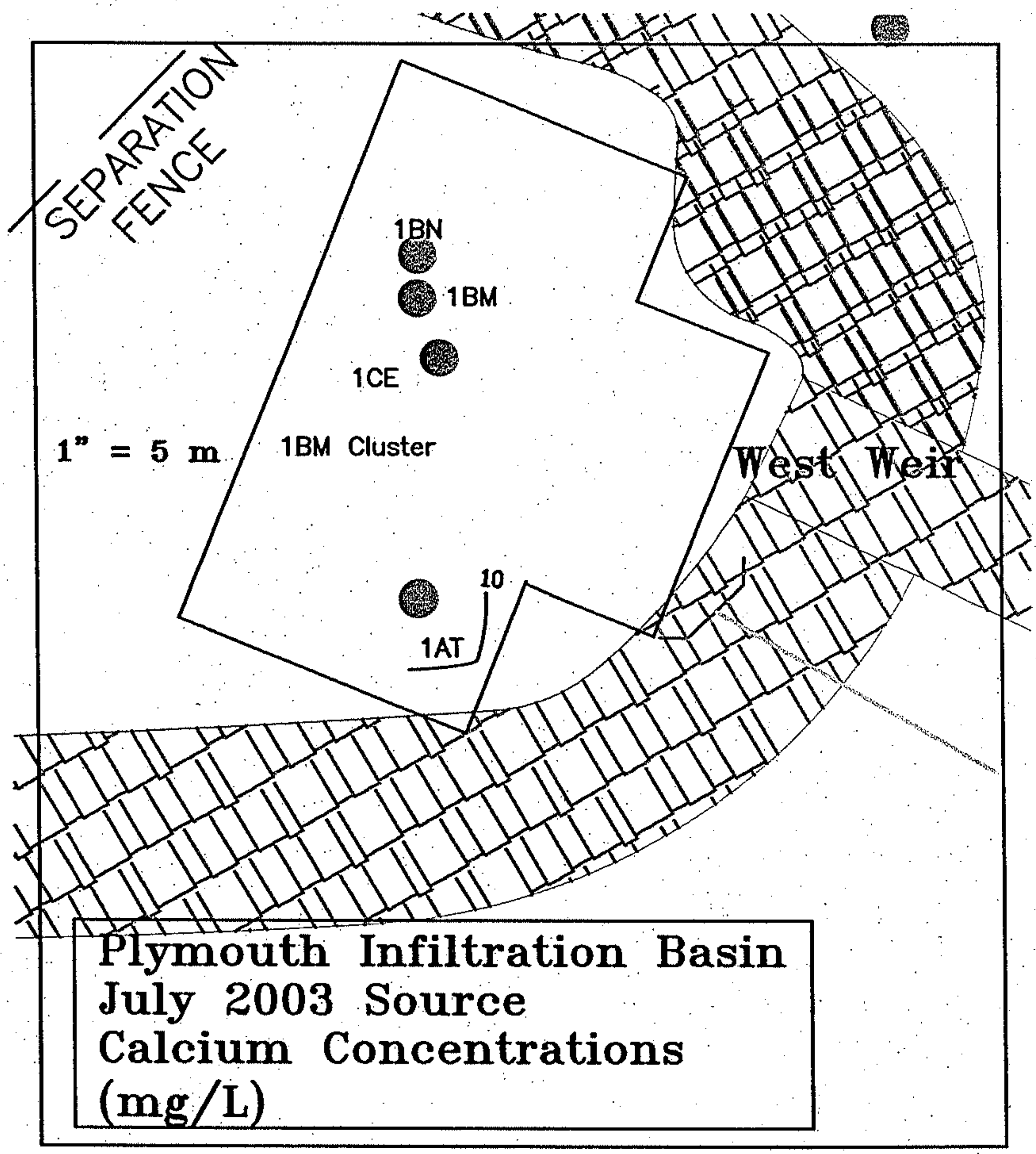


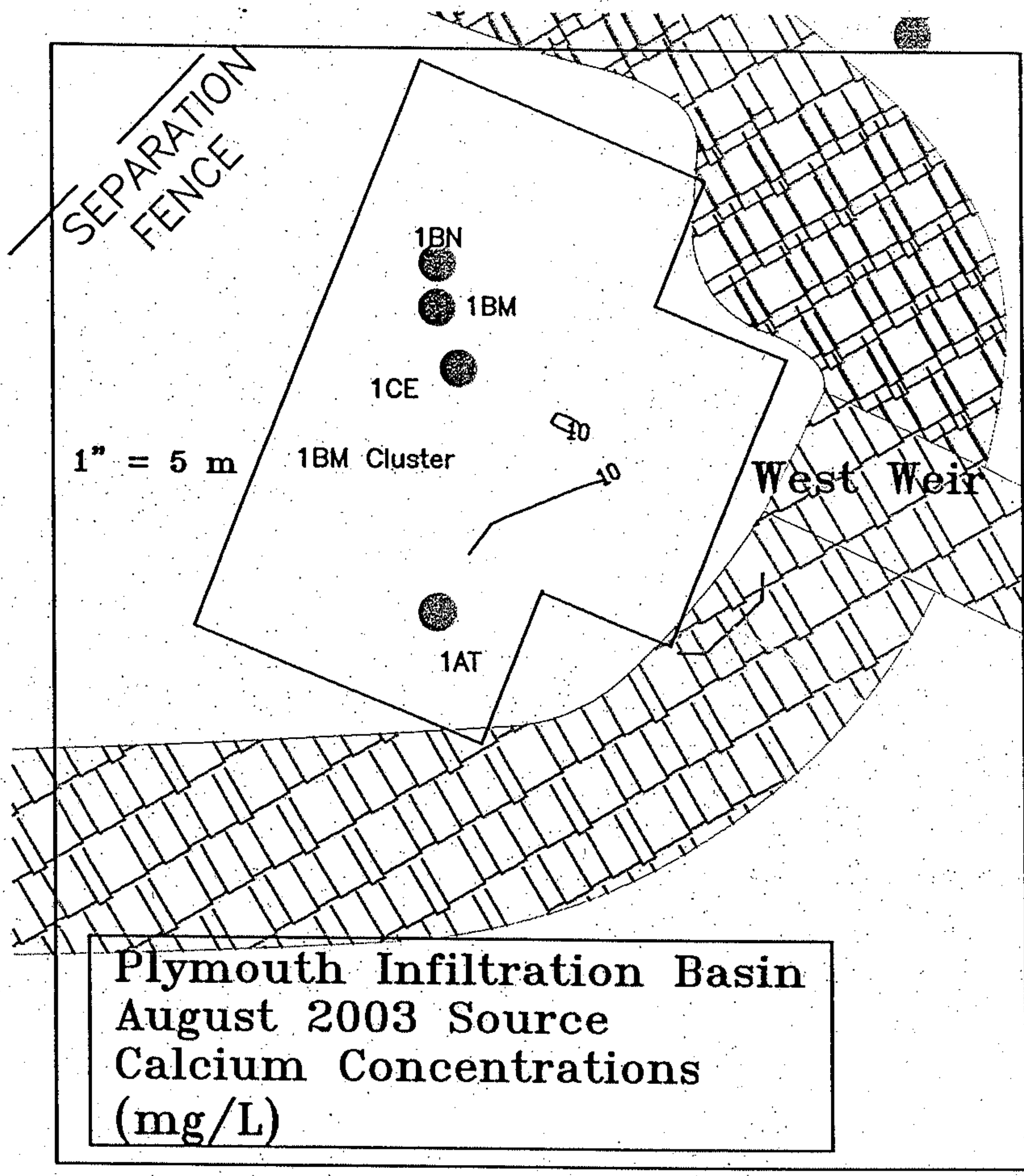
Plymouth Infiltration Basin
April 2003 Source
Calcium Concentrations
(mg/L)

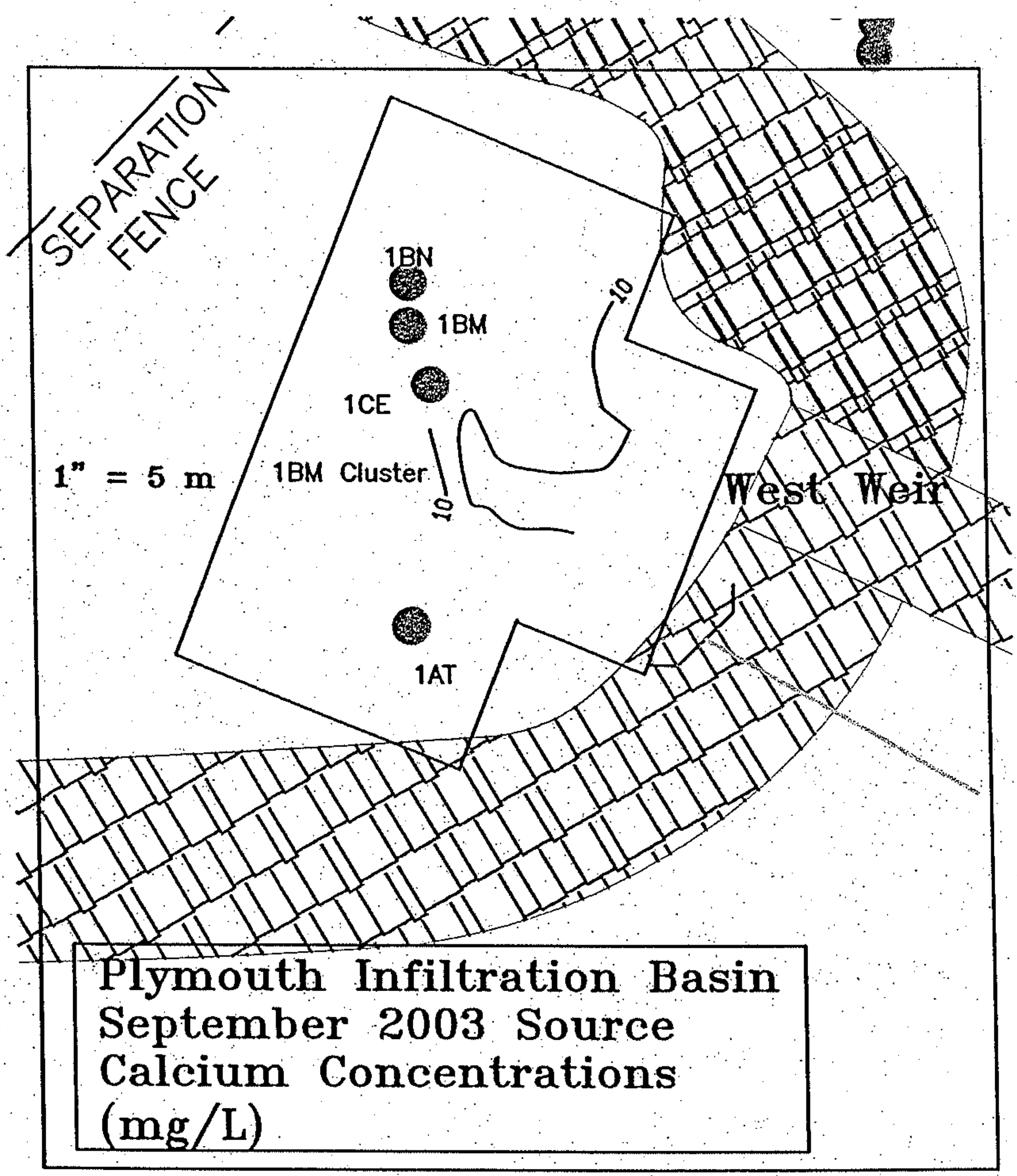


Plymouth Infiltration Basin
May 2003 Source
Calcium Concentrations
(mg/L)

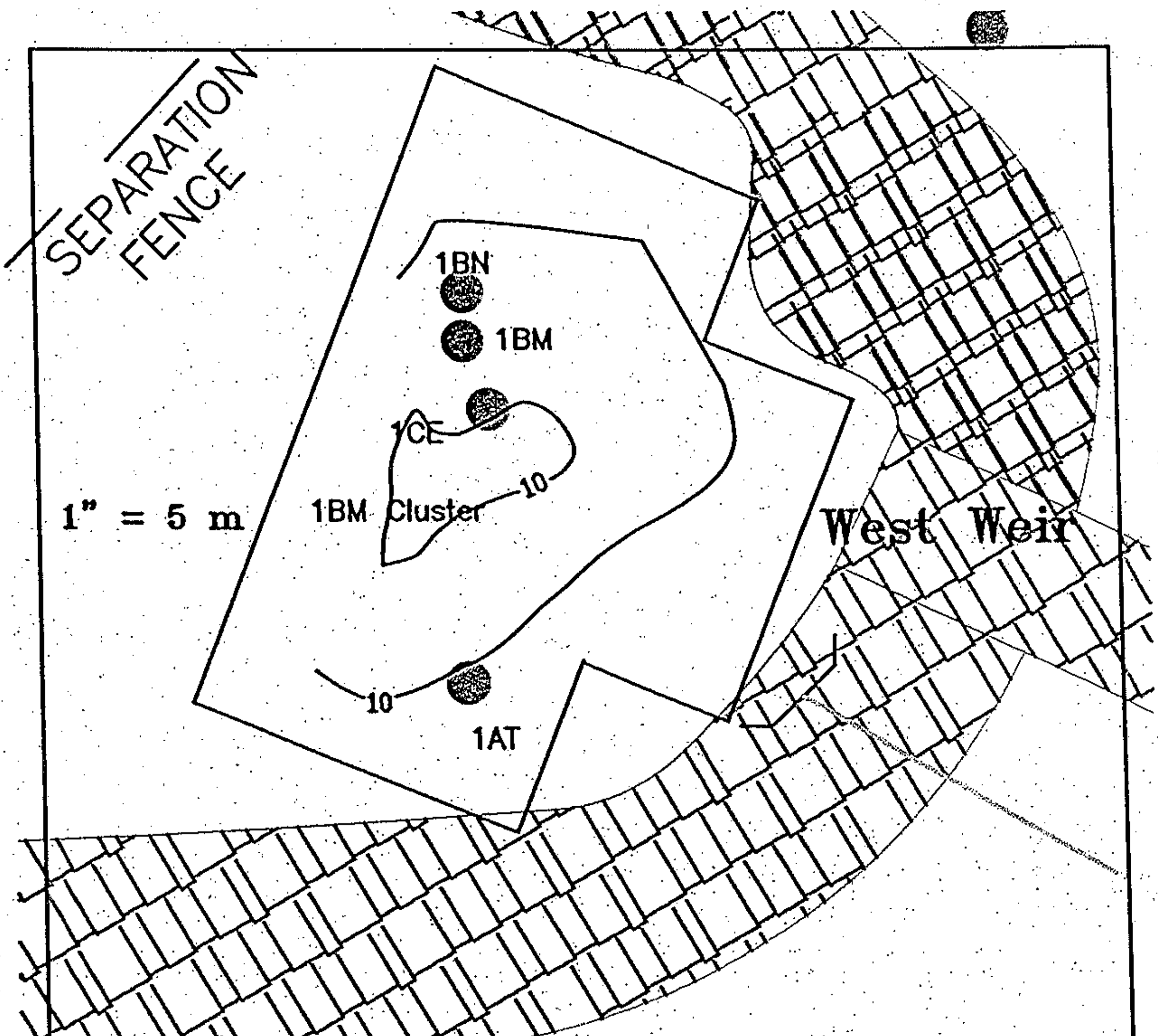

SEPARATION
FENCE
1BN
1BM
1CE
1" = 5 m
1BM Cluster
10
1AT
West Weir
Plymouth Infiltration Basin
June 2003 Source
Calcium Concentrations
(mg/L)


SEPARATION
FENCE
1BN
1BM
1CE
1" = 5 m
1BM Cluster
West Weir
10
1AT
Plymouth Infiltration Basin
July 2003 Source
Calcium Concentrations
(mg/L)

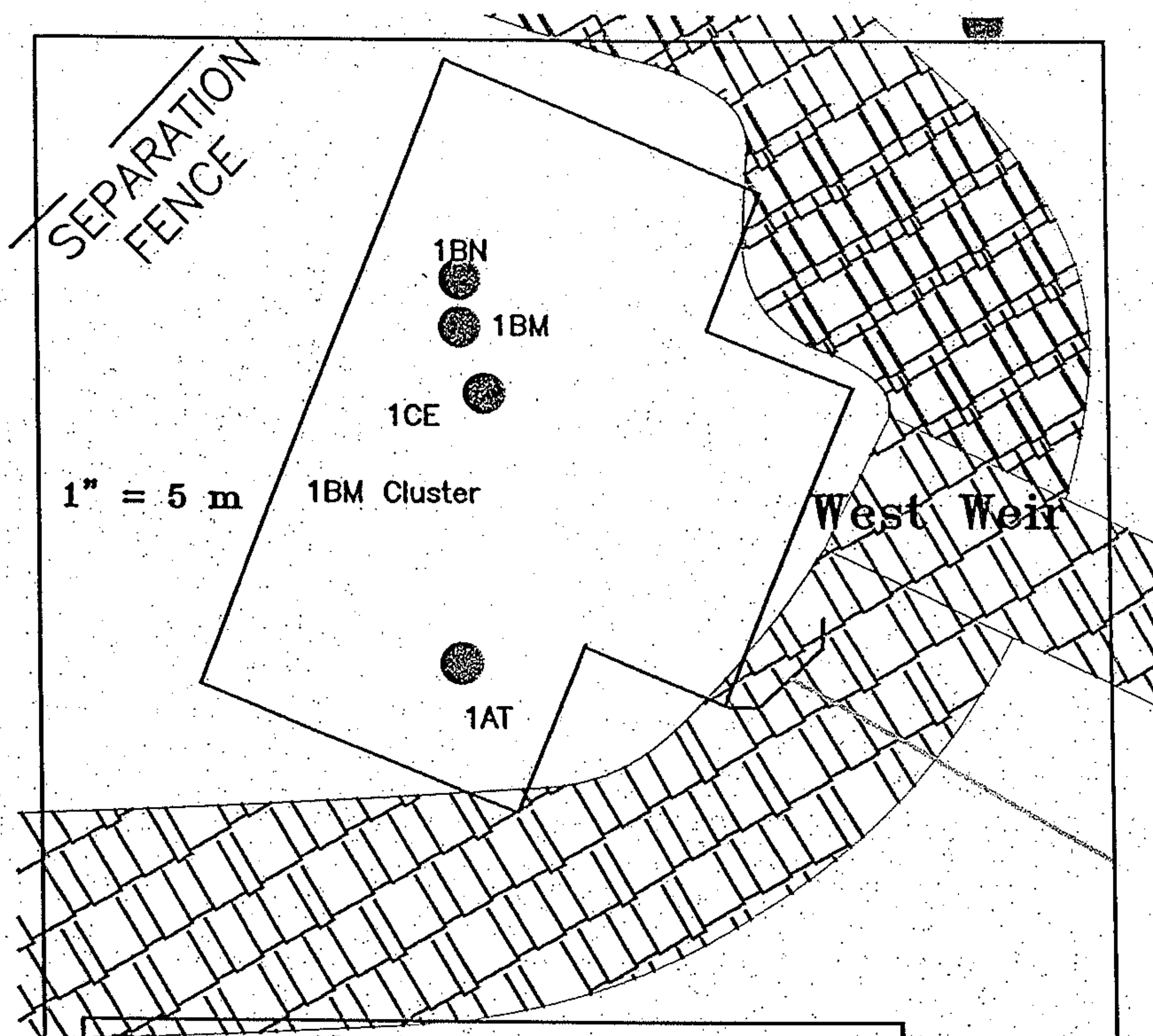

SEPARATION FENCE
1BN
1BM
1CE
1" = 5 m
1BM Cluster
10
10
West Weir
1AT
Plymouth Infiltration Basin
August 2003 Source
Calcium Concentrations
(mg/L)



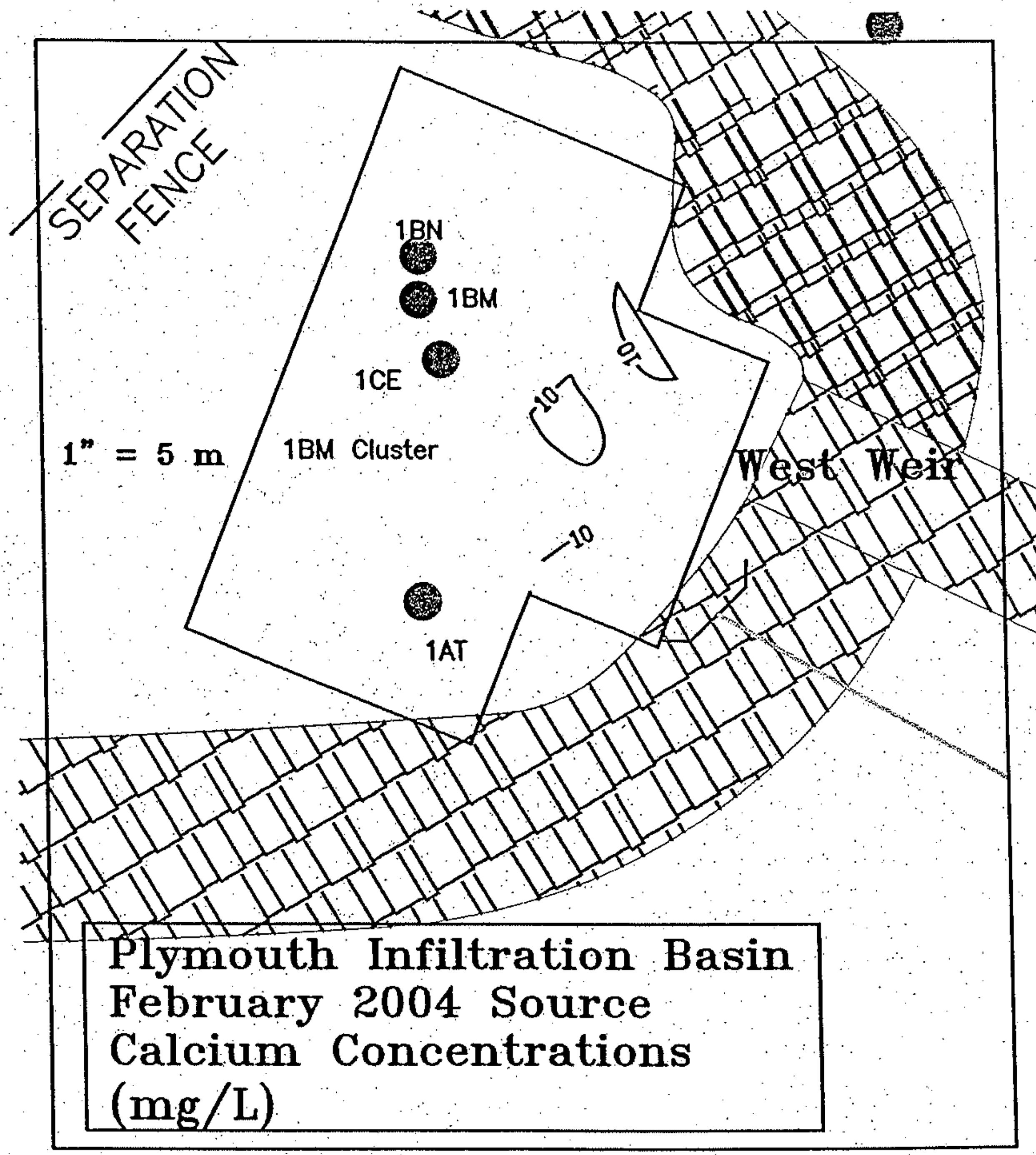
Plymouth Infiltration Basin
September 2003 Source
Calcium Concentrations
(mg/L)

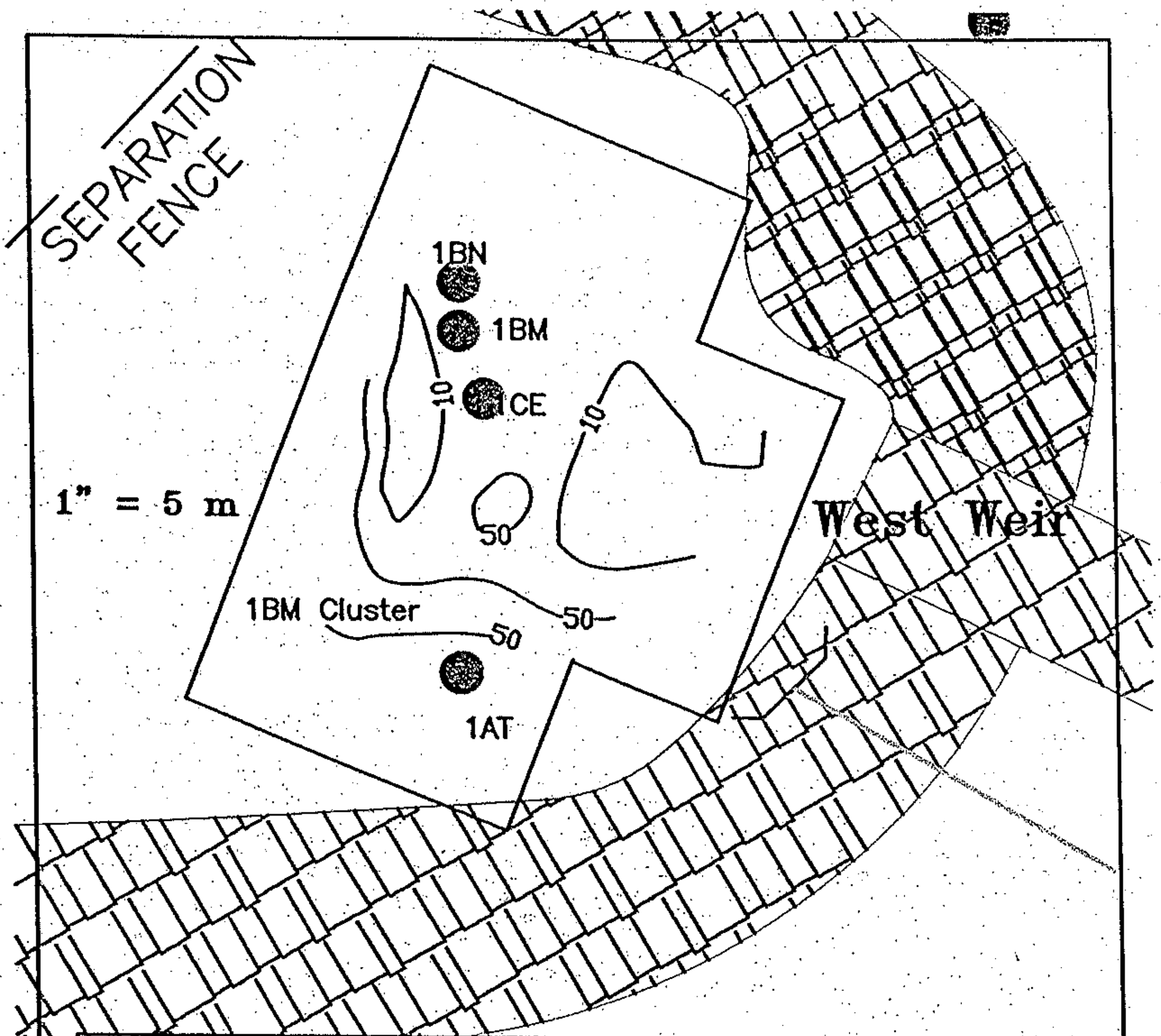


Plymouth Infiltration Basin
October 2003 Source
Calcium Concentrations
(mg/L)

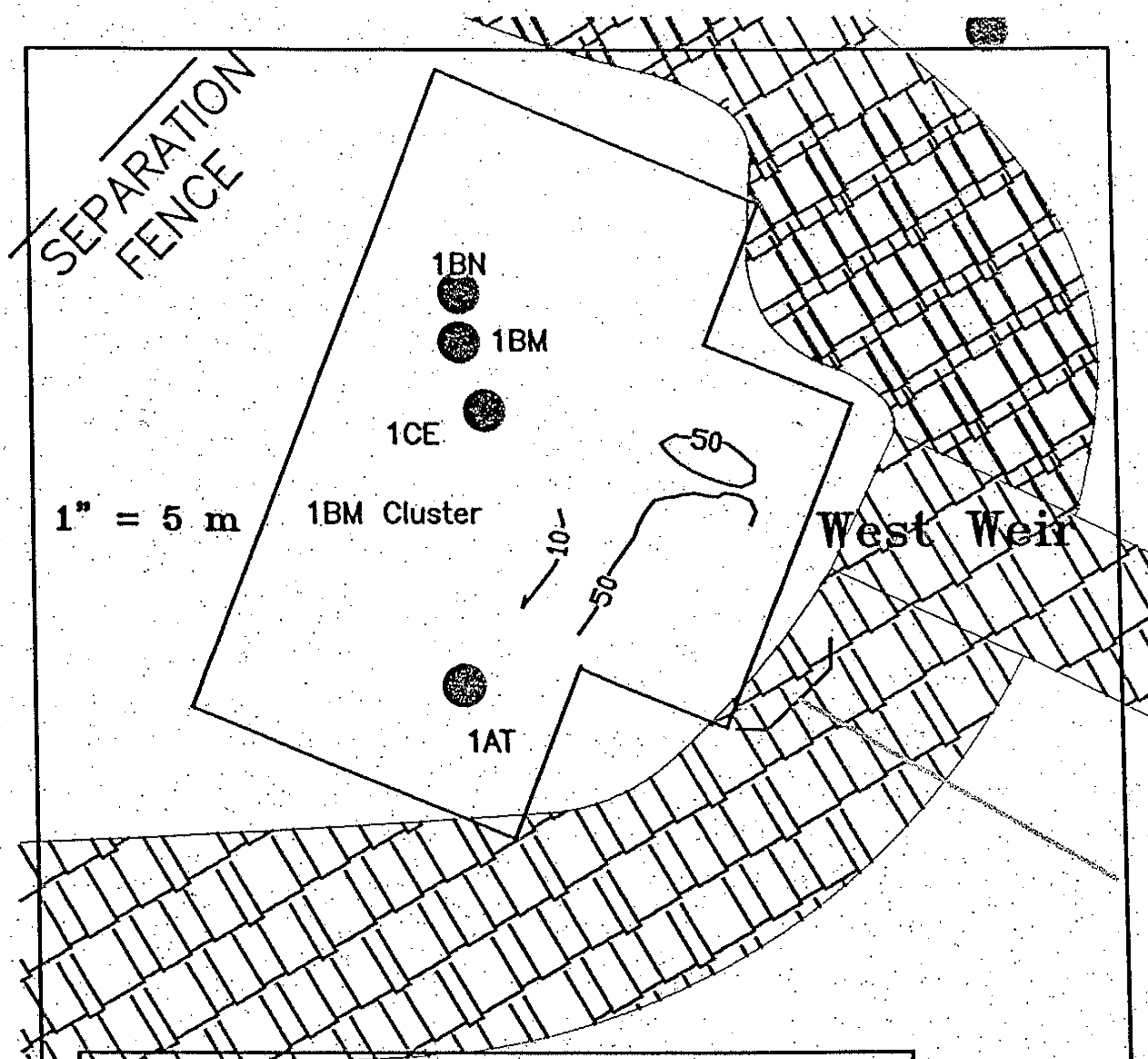


Plymouth Infiltration Basin
November 2003 Source
Calcium Concentrations
(mg/L)

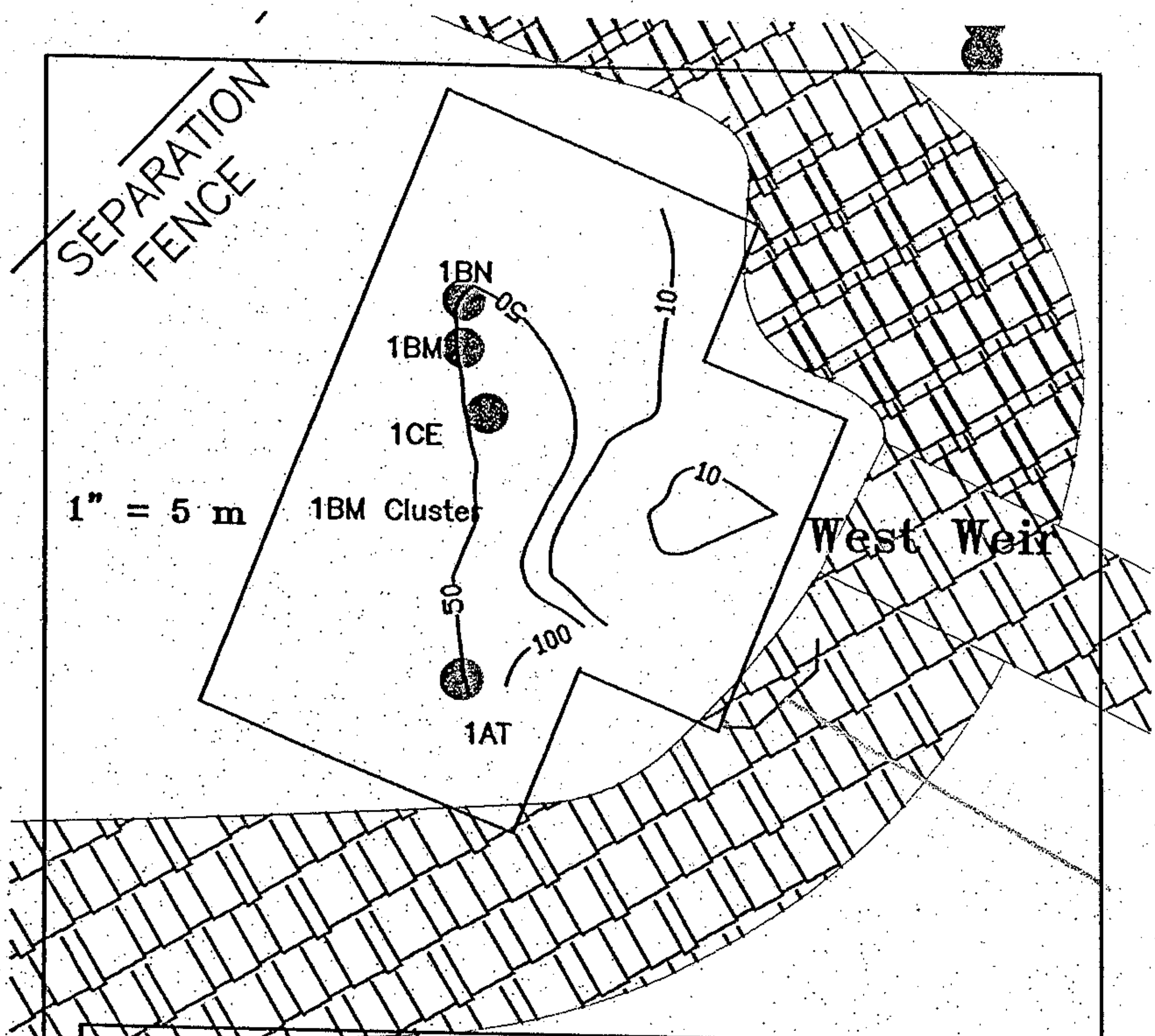

SEPARATION FENCE
1BN
1BM
1CE
1" = 5 m
1BM Cluster
10
10
10
West Weir
1AT
Plymouth Infiltration Basin
February 2004 Source
Calcium Concentrations
(mg/L)



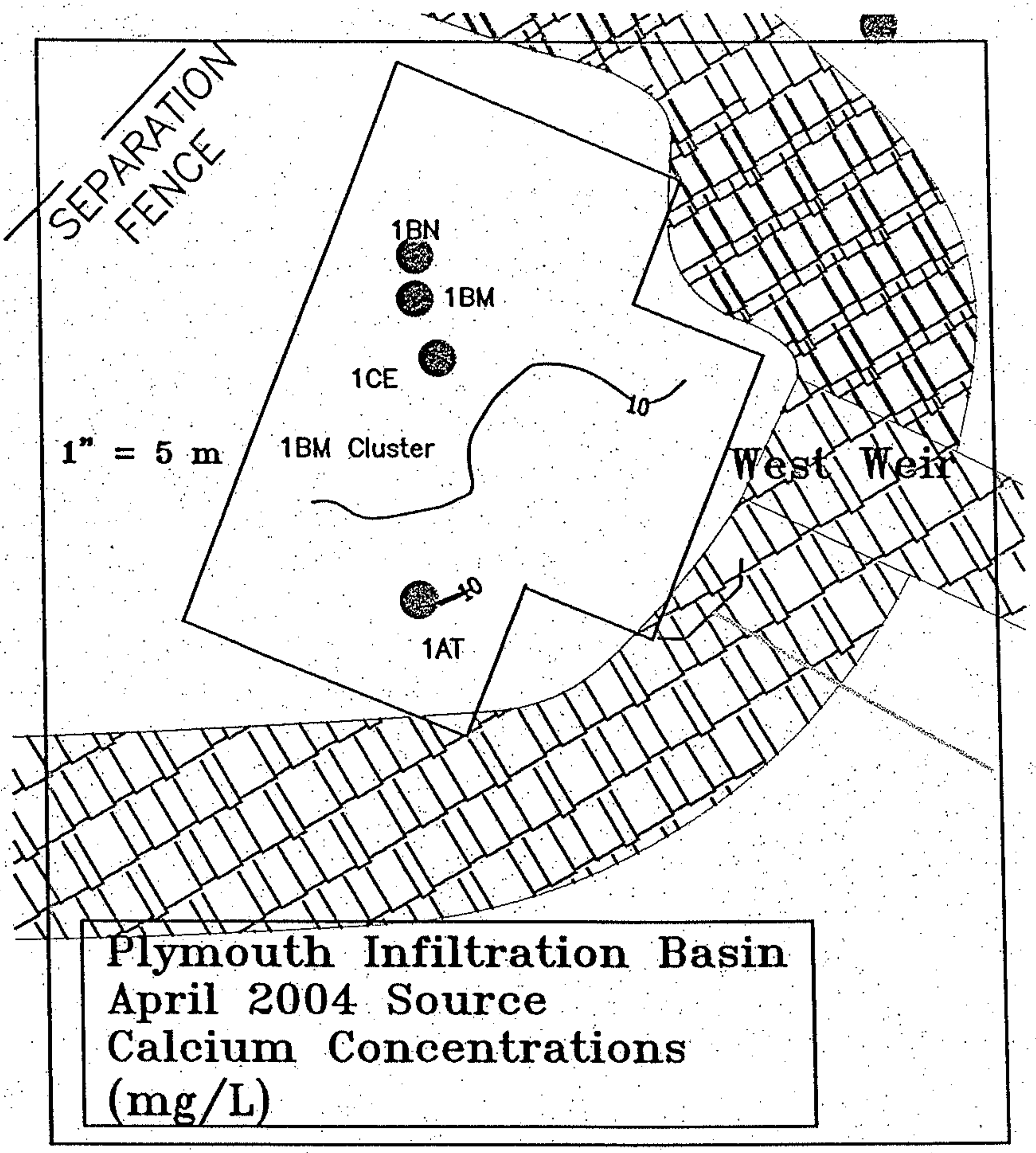
Plymouth Infiltration Basin
March 2004 Source
Calcium Concentrations
(mg/L)

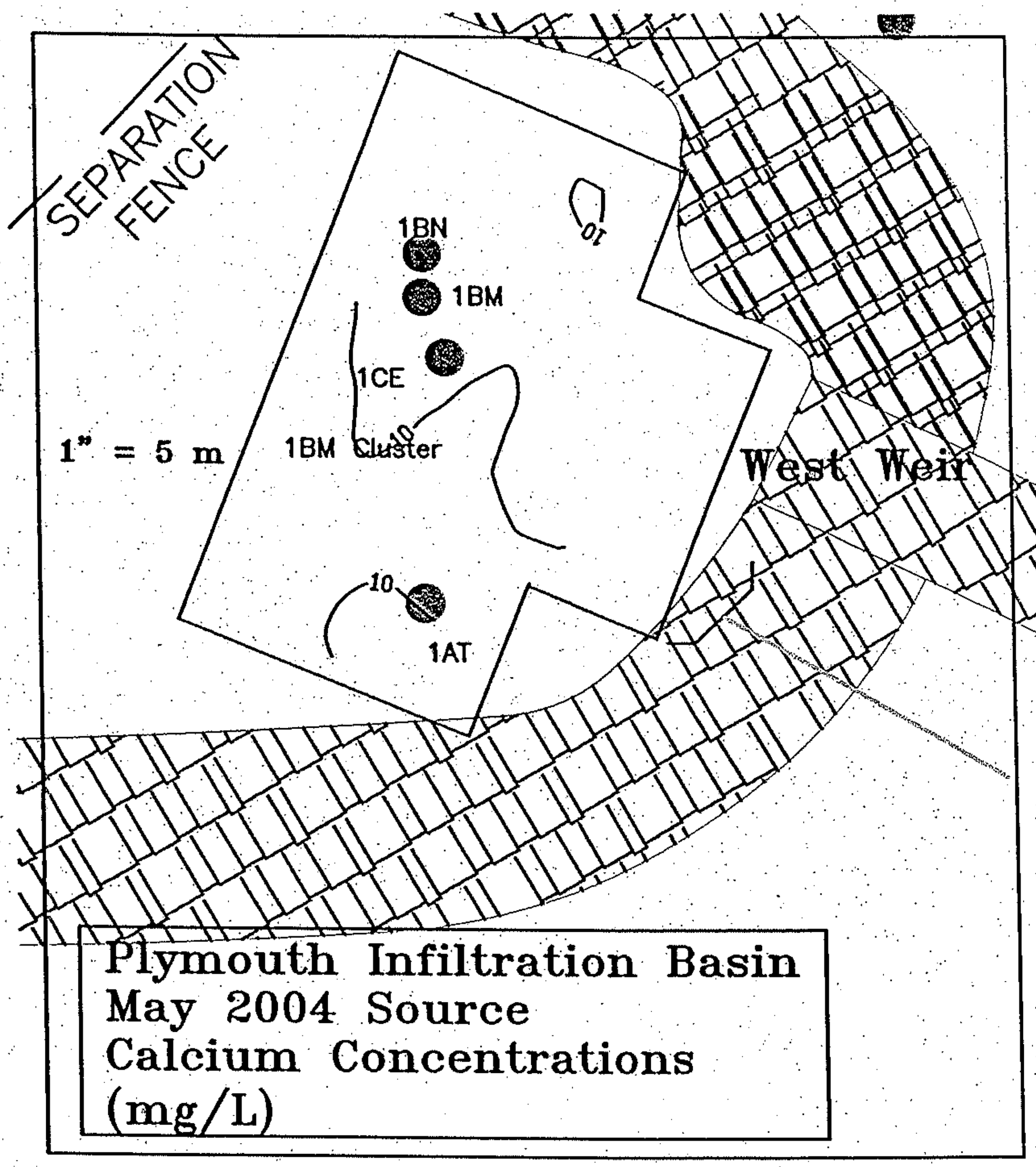


Plymouth Infiltration Basin
December 2003 Source
Calcium Concentrations
(mg/L)



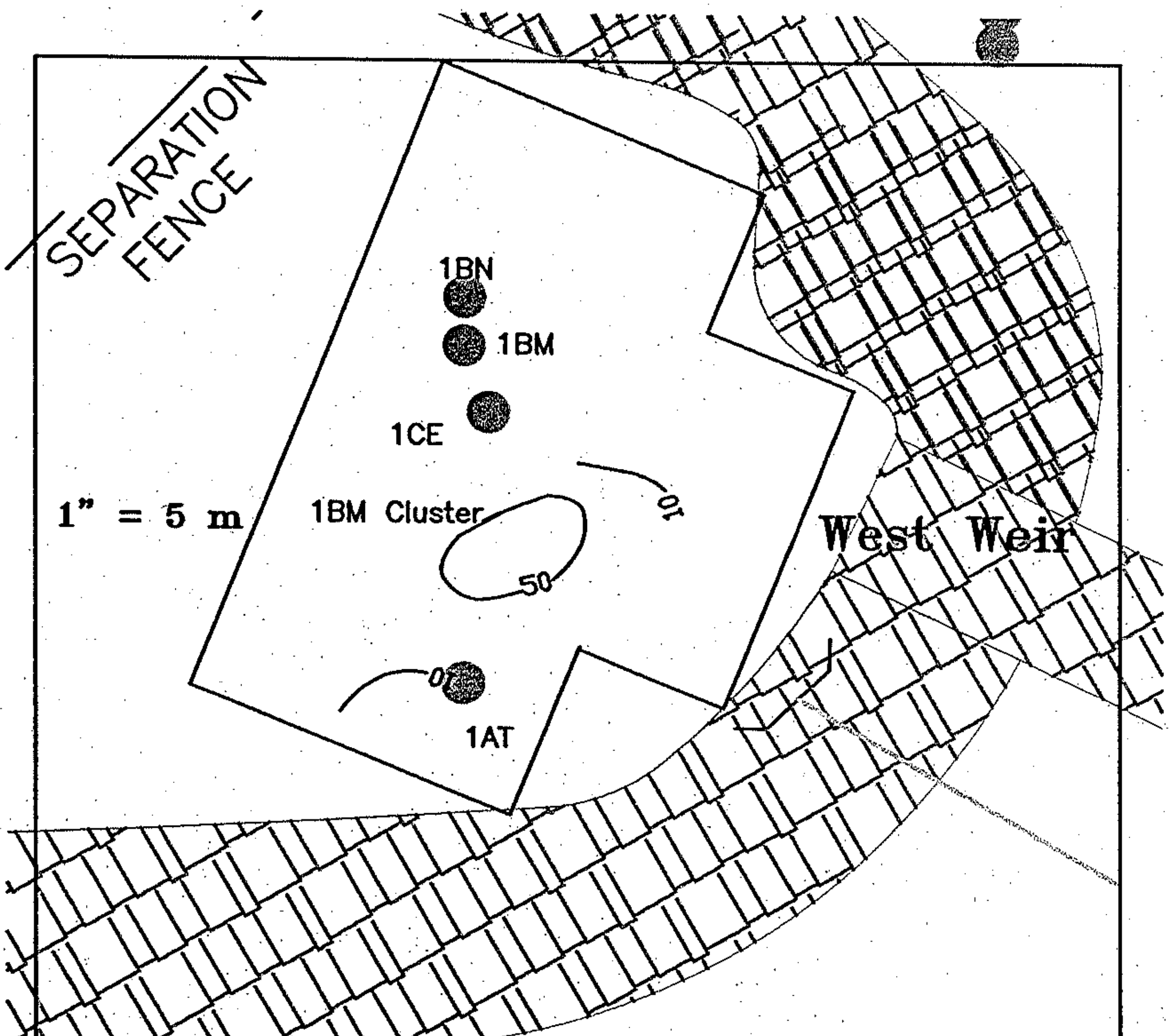
Plymouth Infiltration Basin
January 2004 Source
Calcium Concentrations
(mg/L)


SEPARATION FENCE
1BN
1BM
1CE
1BM Cluster
1" = 5 m
10
West Weir
10
1AT
Plymouth Infiltration Basin
April 2004 Source
Calcium Concentrations
(mg/L)

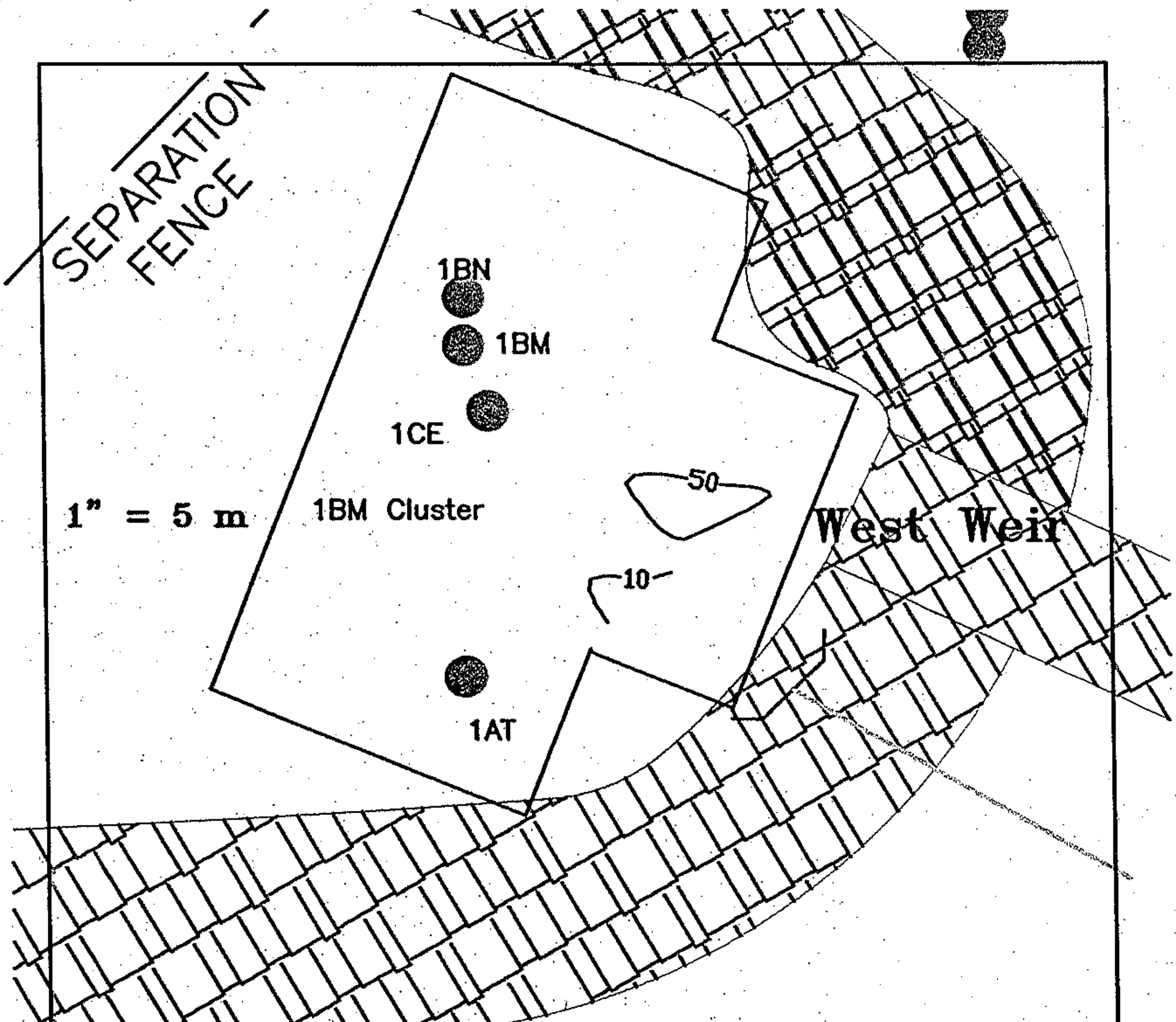


Plymouth Infiltration Basin
May 2004 Source
Calcium Concentrations
(mg/L)

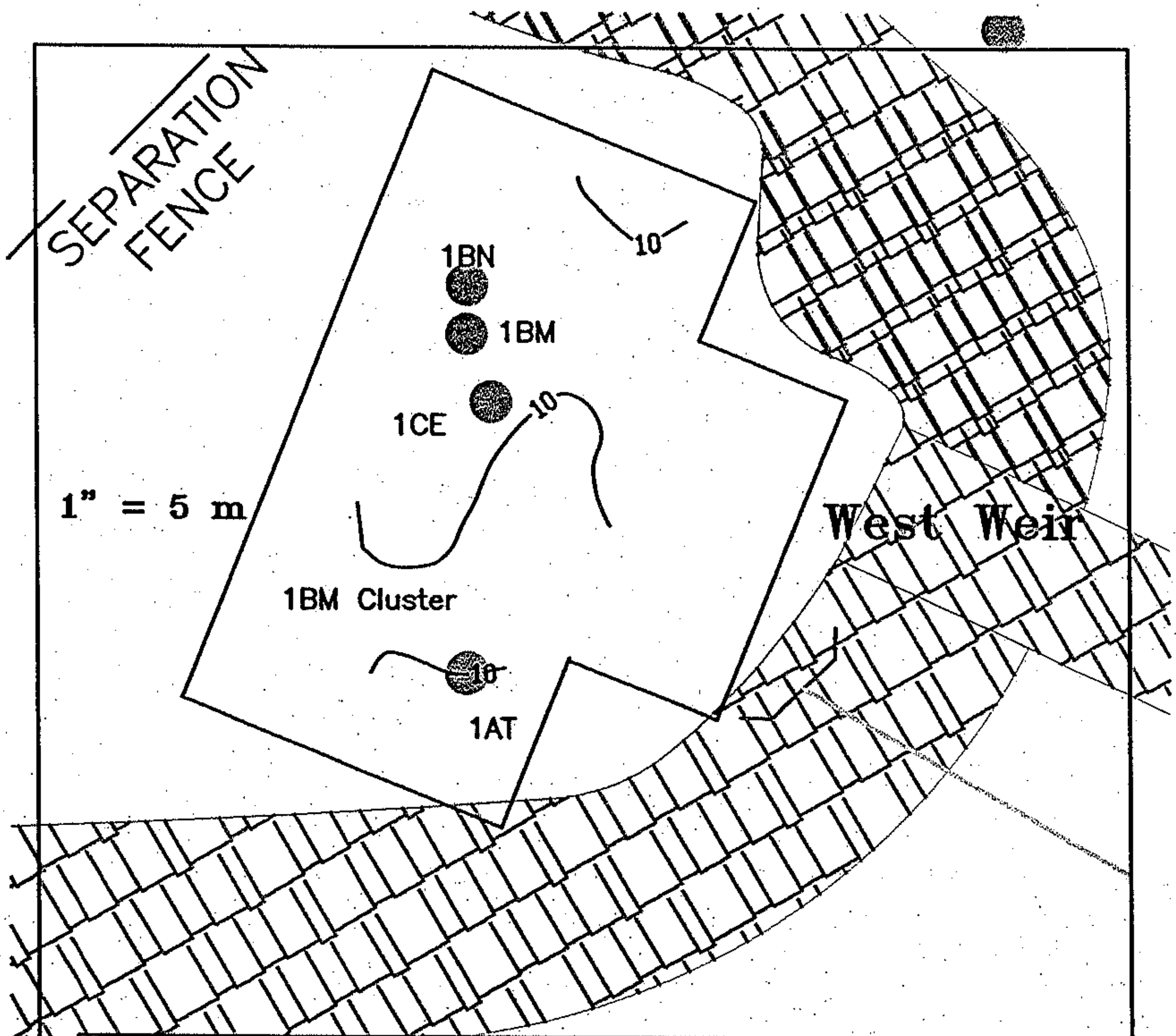
APPENDIX L
Magnesium Source Isopleths, November 2002 – May 2004



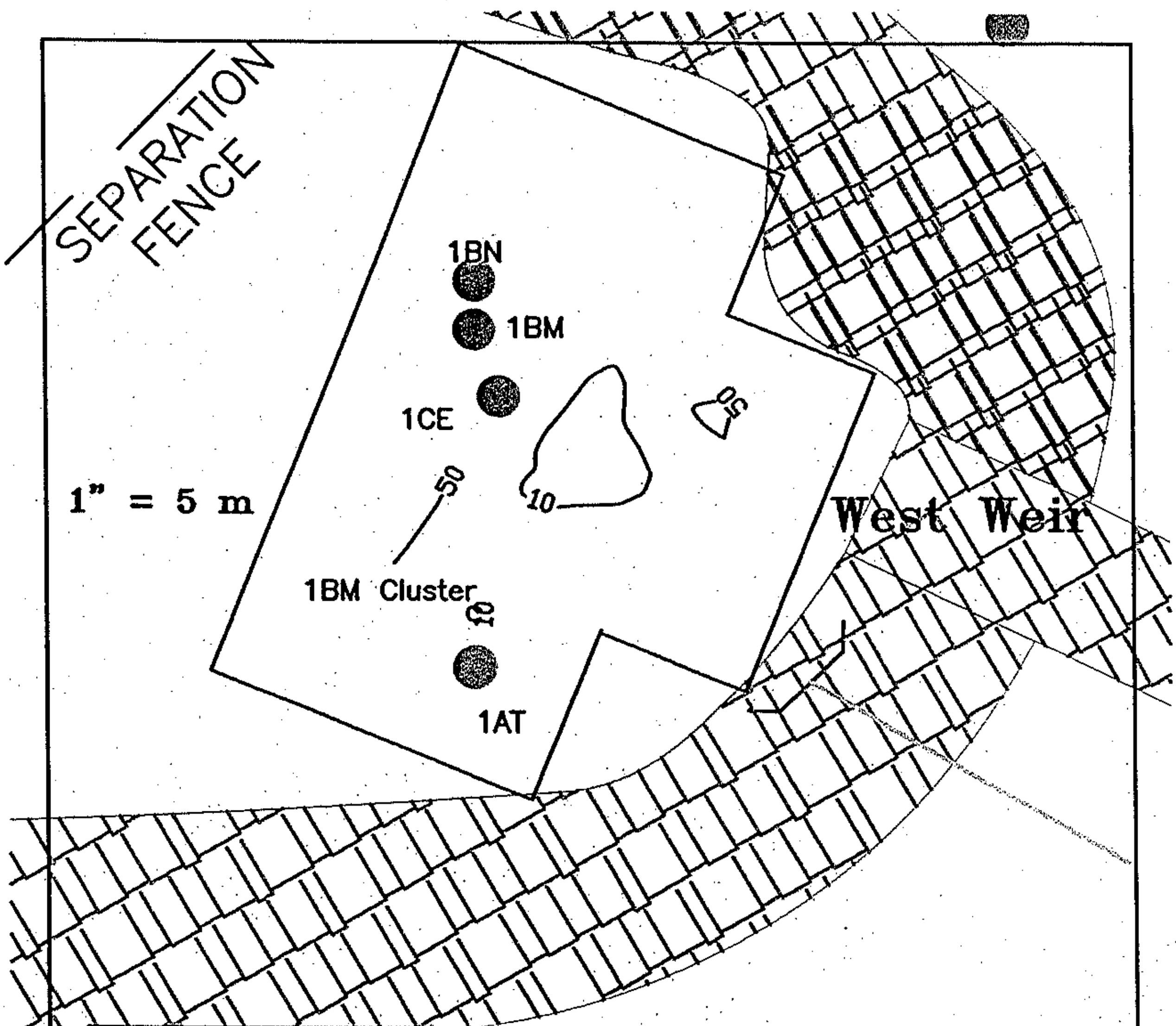
Plymouth Infiltration Basin
November 2002 Source
Magnesium Concentrations
(mg/L)



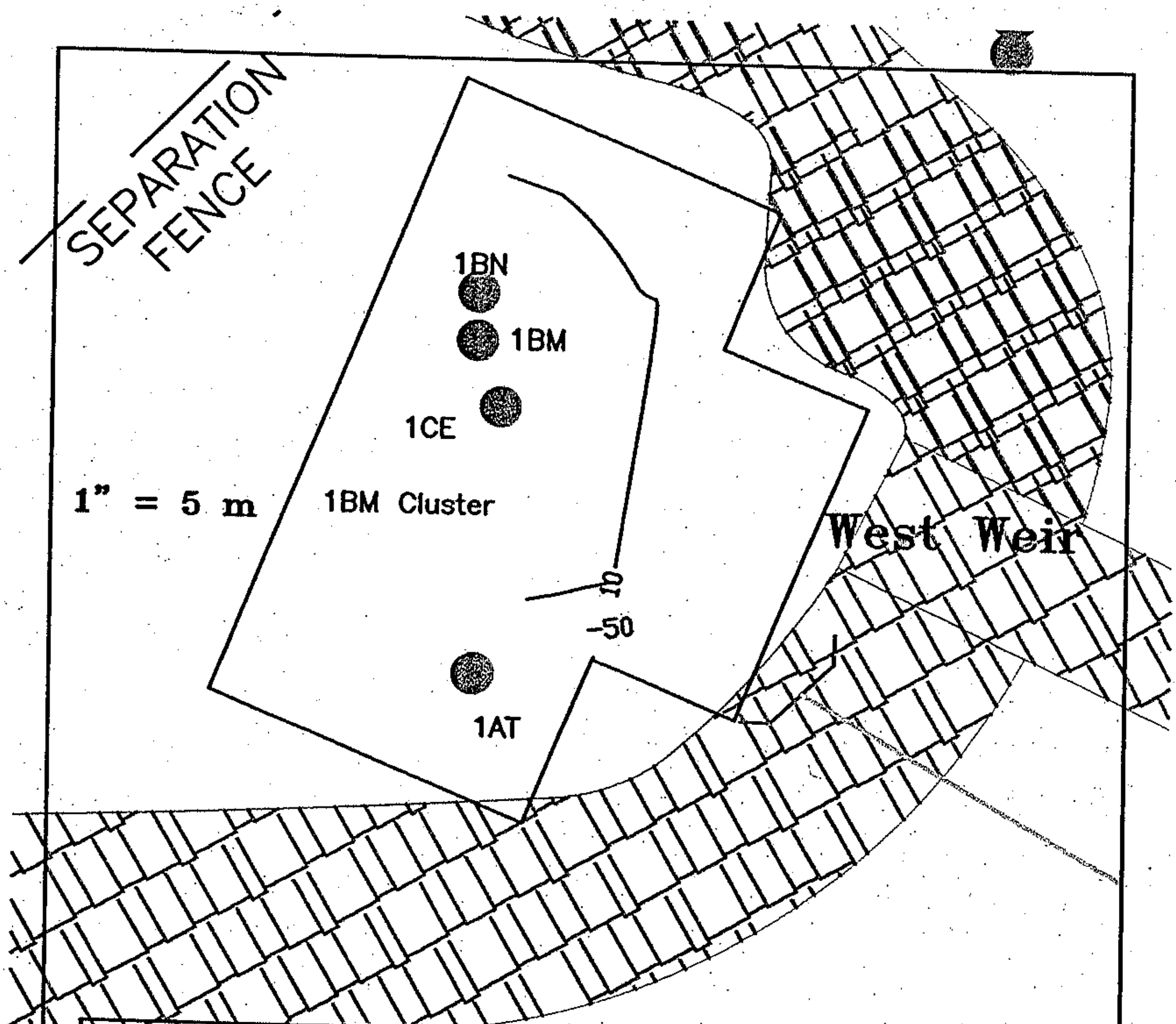
Plymouth Infiltration Basin
December 2002 Source
Magnesium Concentrations
(mg/L)



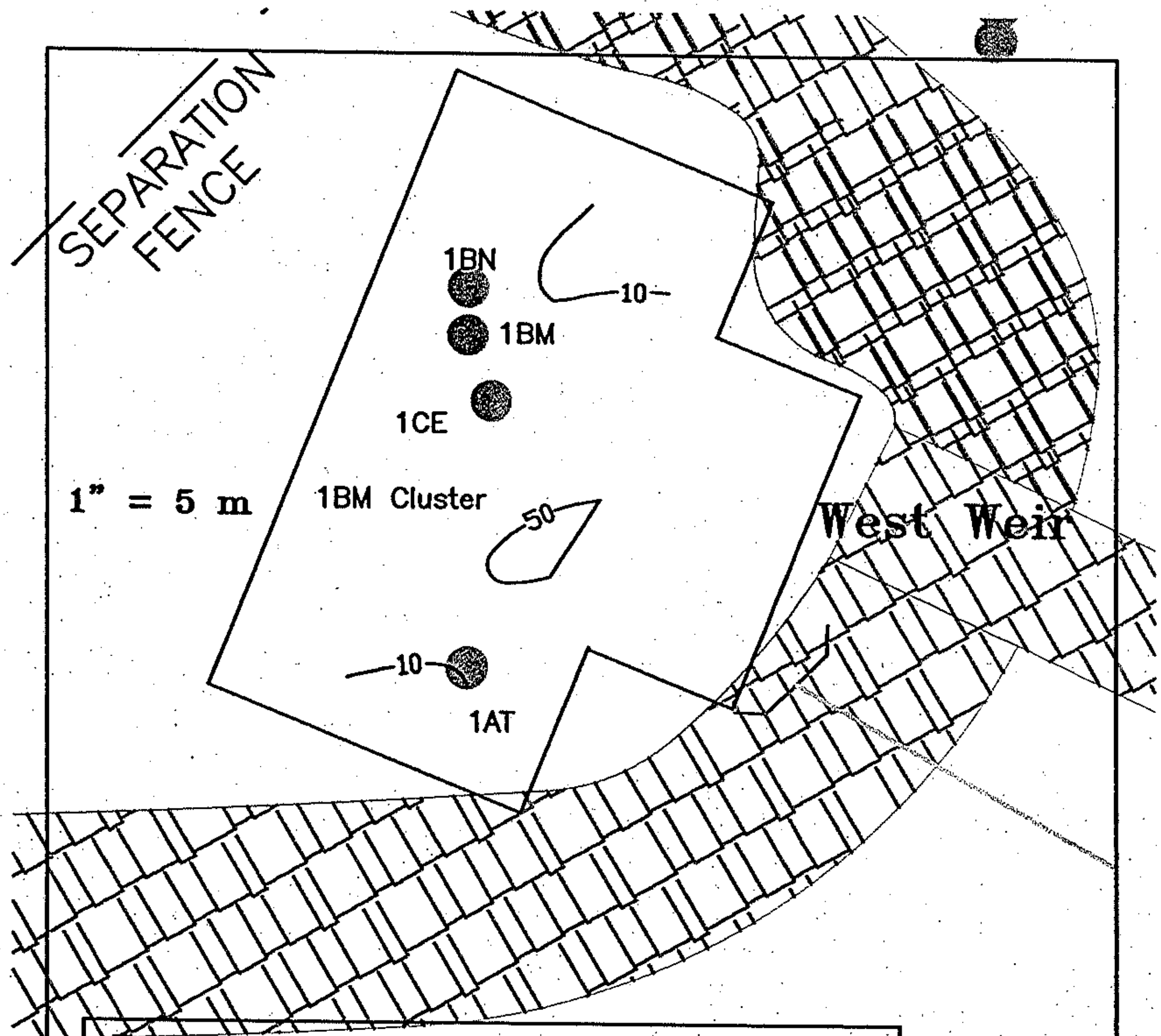
Plymouth Infiltration Basin
January 2003 Source
Magnesium Concentrations
(mg/L)



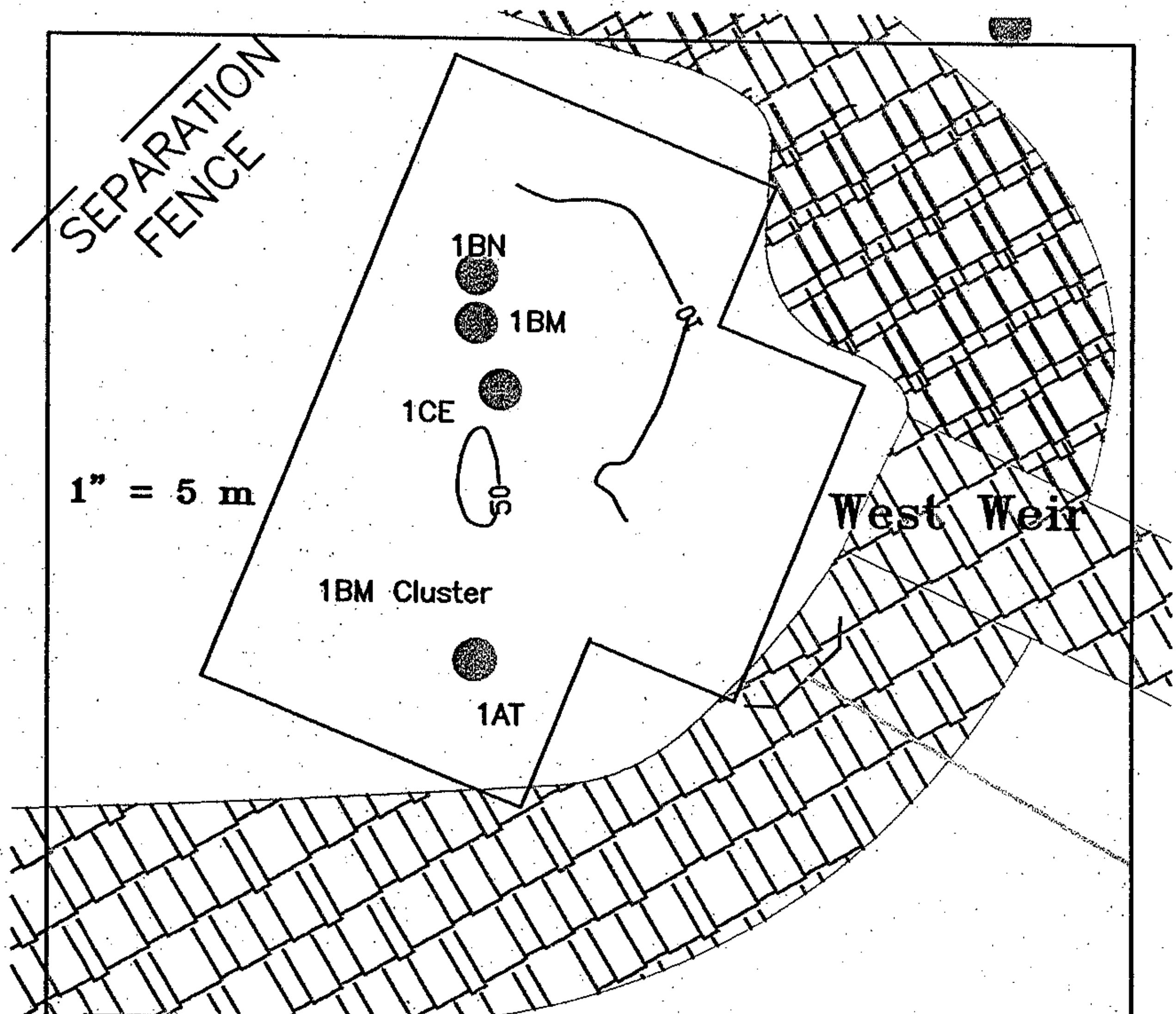
Plymouth Infiltration Basin
February 2003 Source
Magnesium Concentrations
(mg/L)



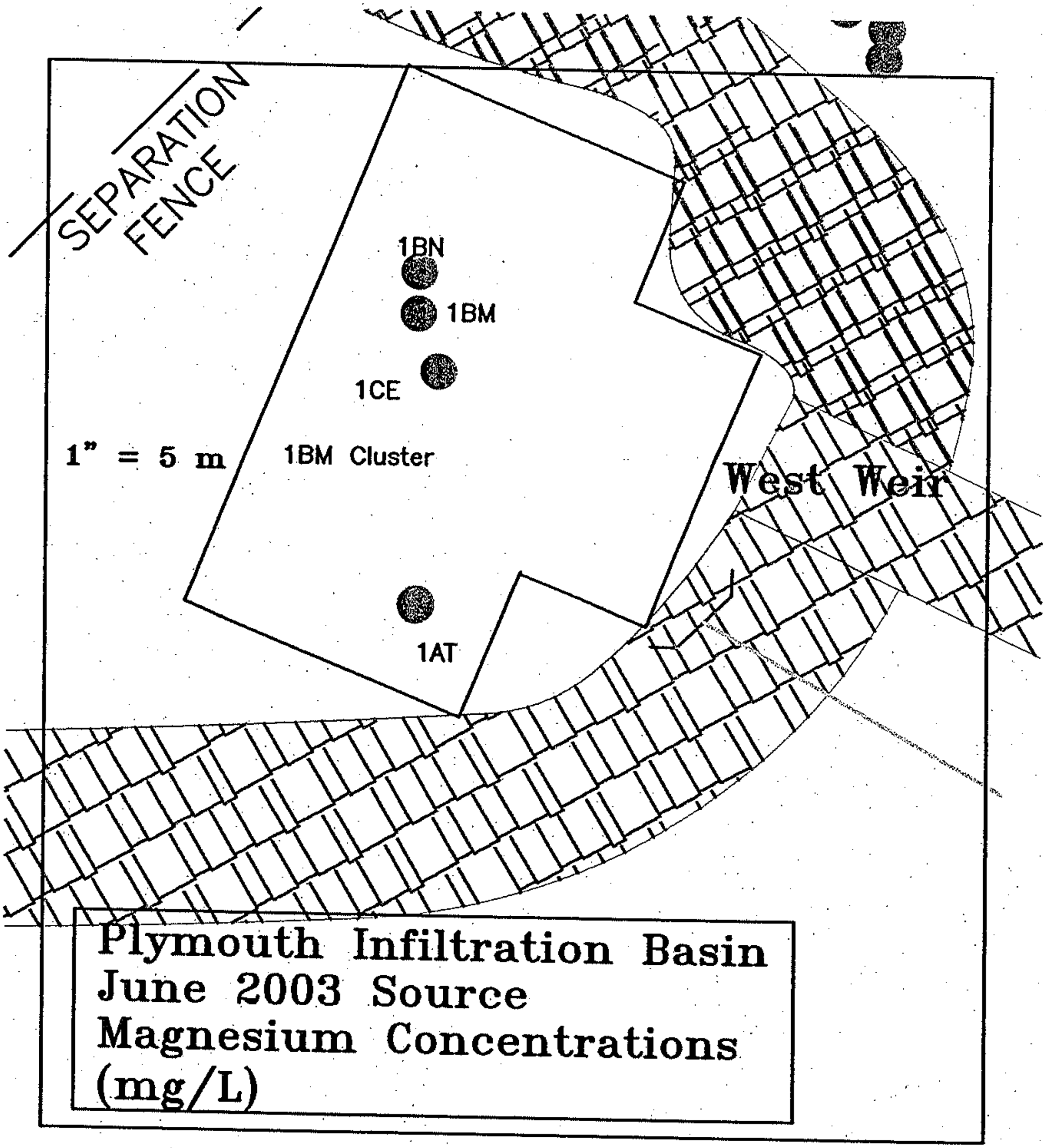
Plymouth Infiltration Basin
March 2003 Source
Magnesium Concentrations
(mg/L)

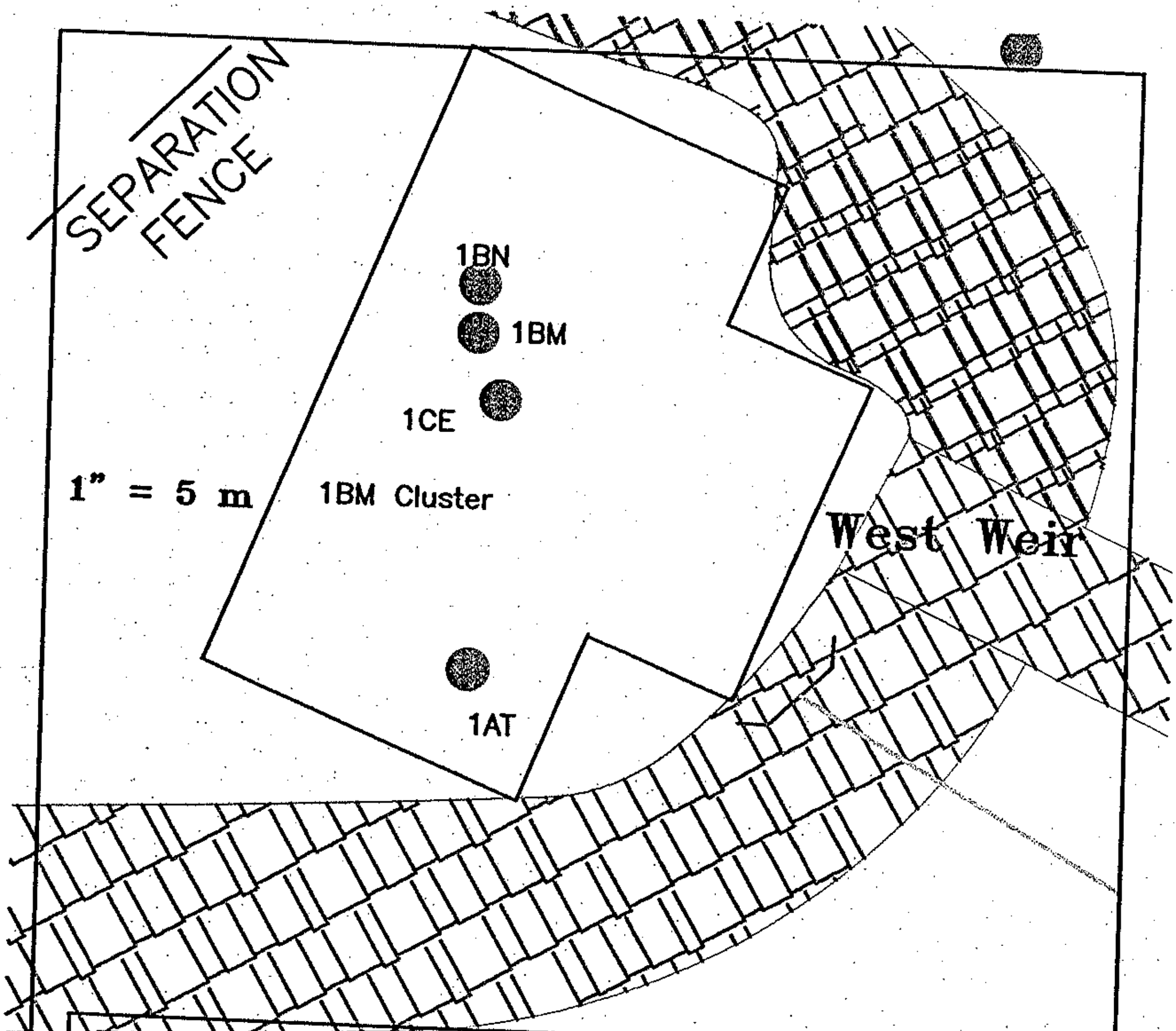


Plymouth Infiltration Basin
April 2003 Source
Magnesium Concentrations
(mg/L)

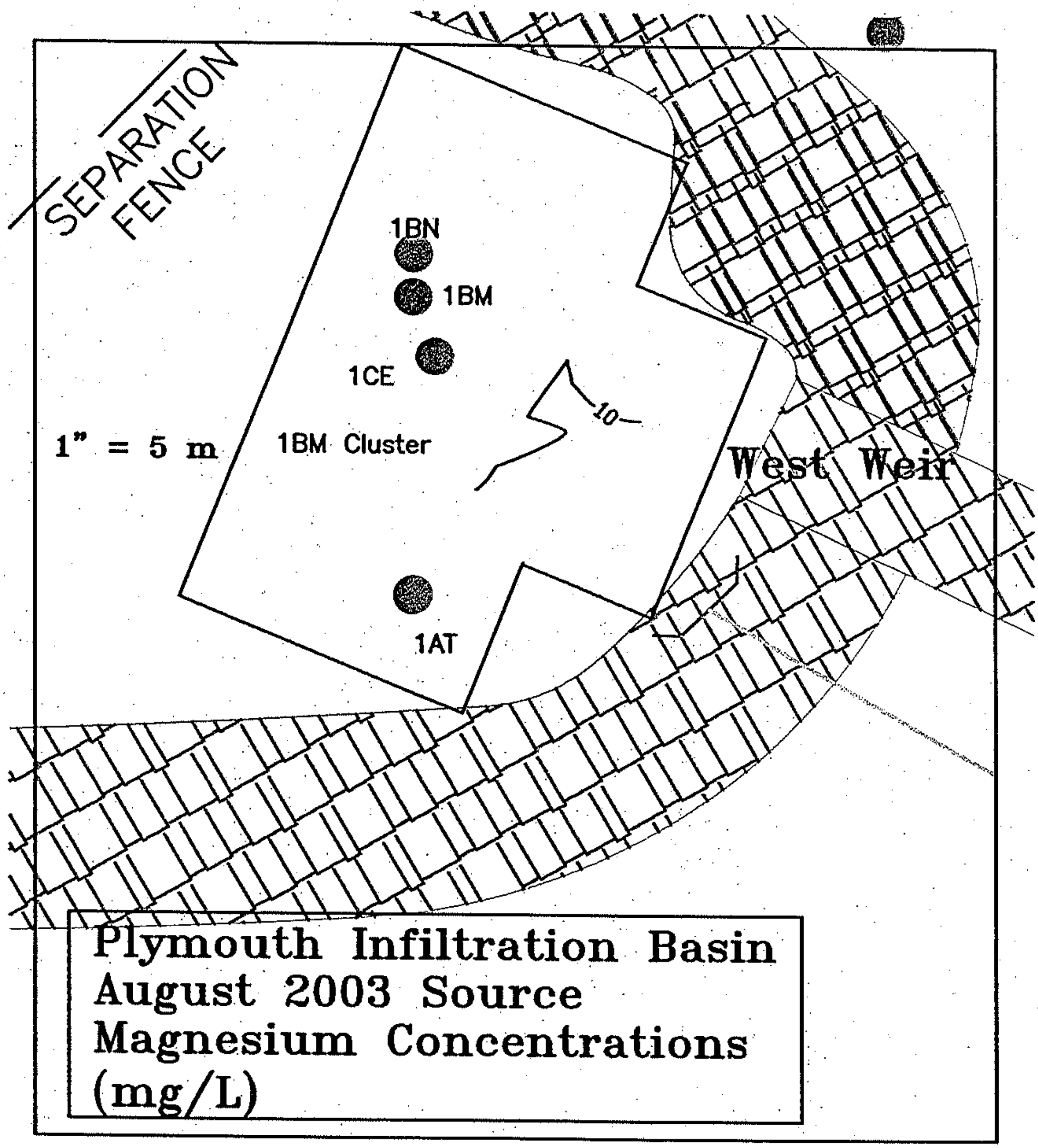


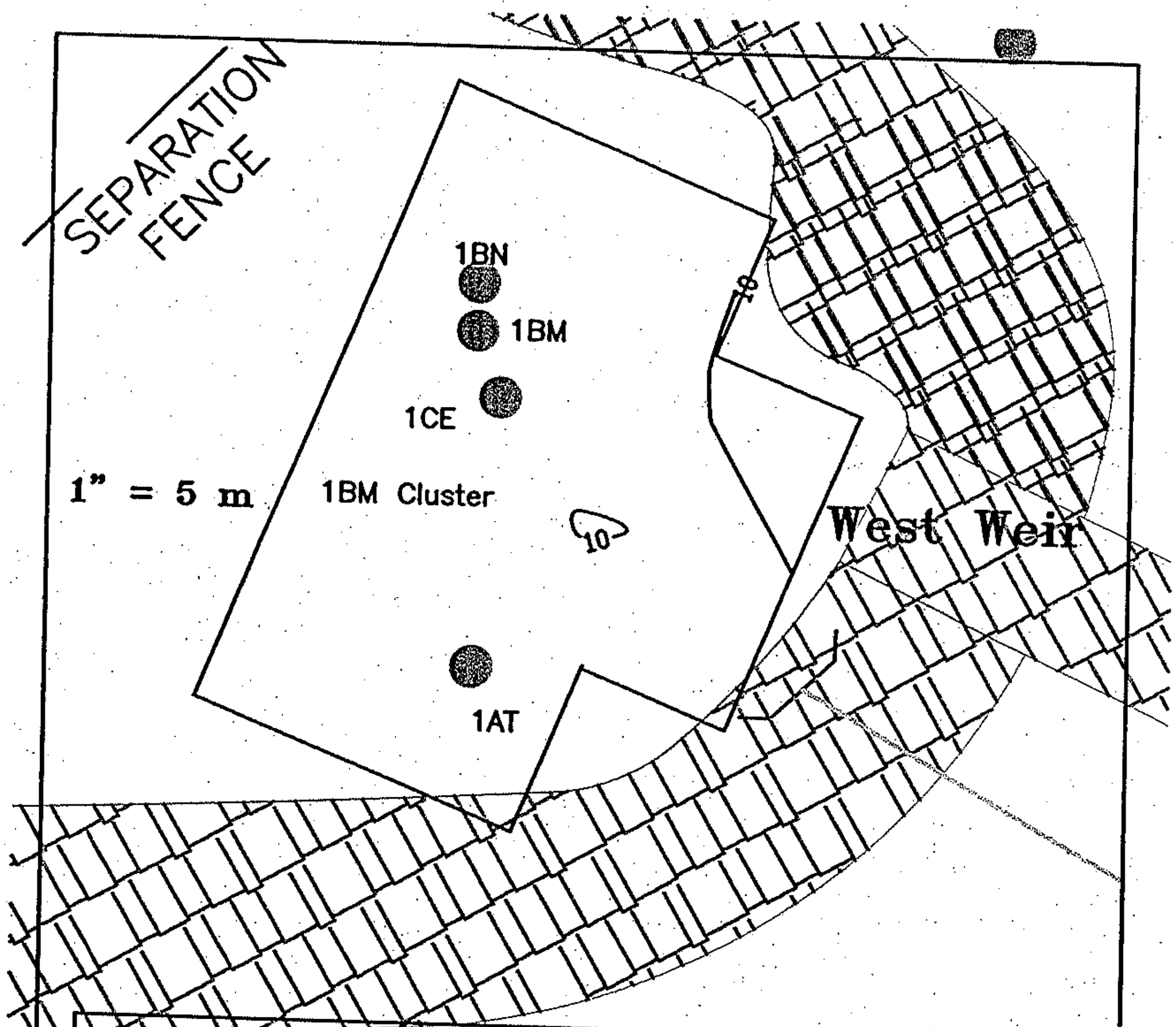
Plymouth Infiltration Basin
May 2003 Source
Magnesium Concentrations
(mg/L)


SEPARATION FENCE
1BN
1BM
1CE
1" = 5 m
1BM Cluster
West Weir
1AT
Plymouth Infiltration Basin
June 2003 Source
Magnesium Concentrations
(mg/L)

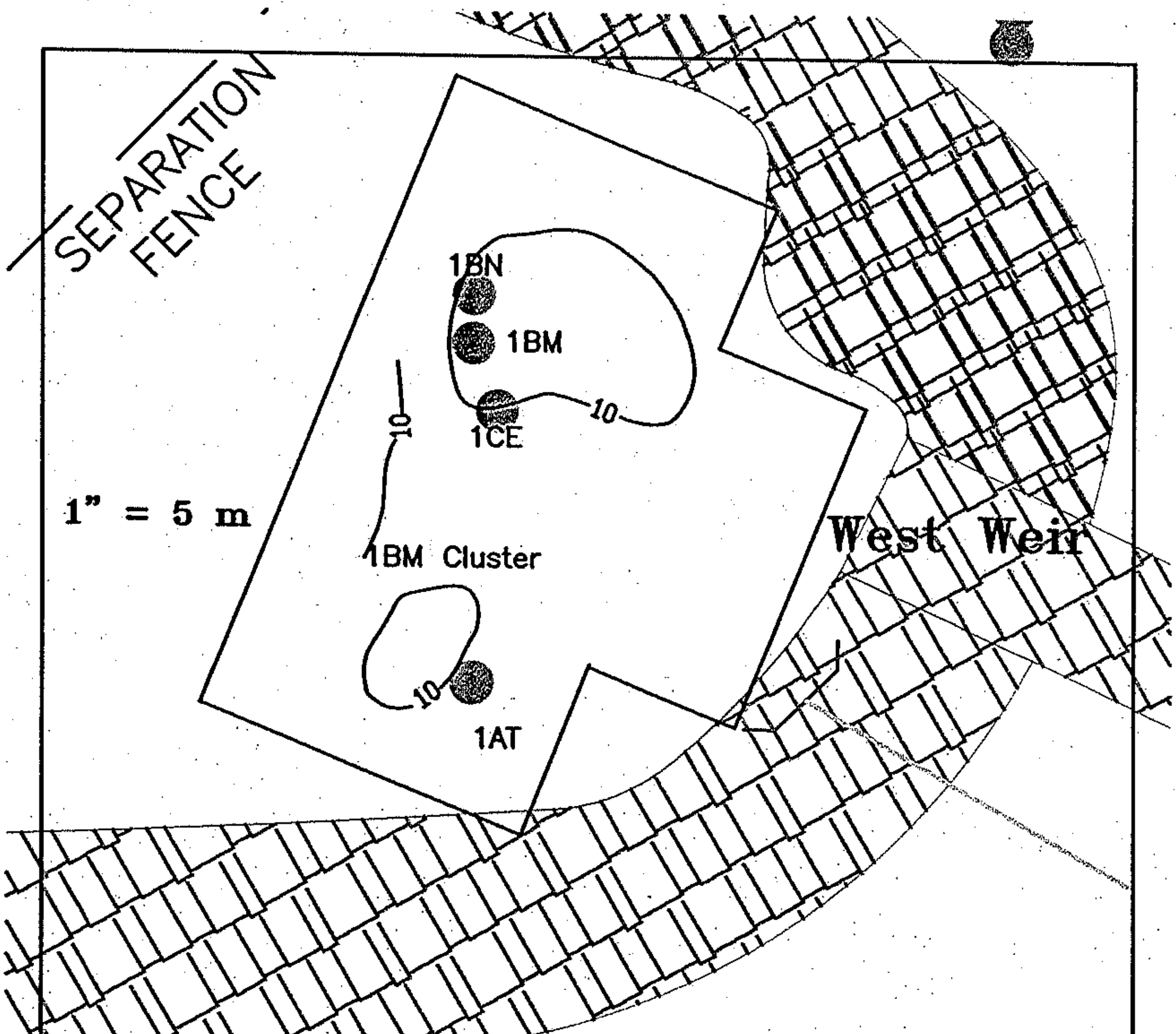


Plymouth Infiltration Basin
July 2003 Source
Magnesium Concentrations
(mg/L)

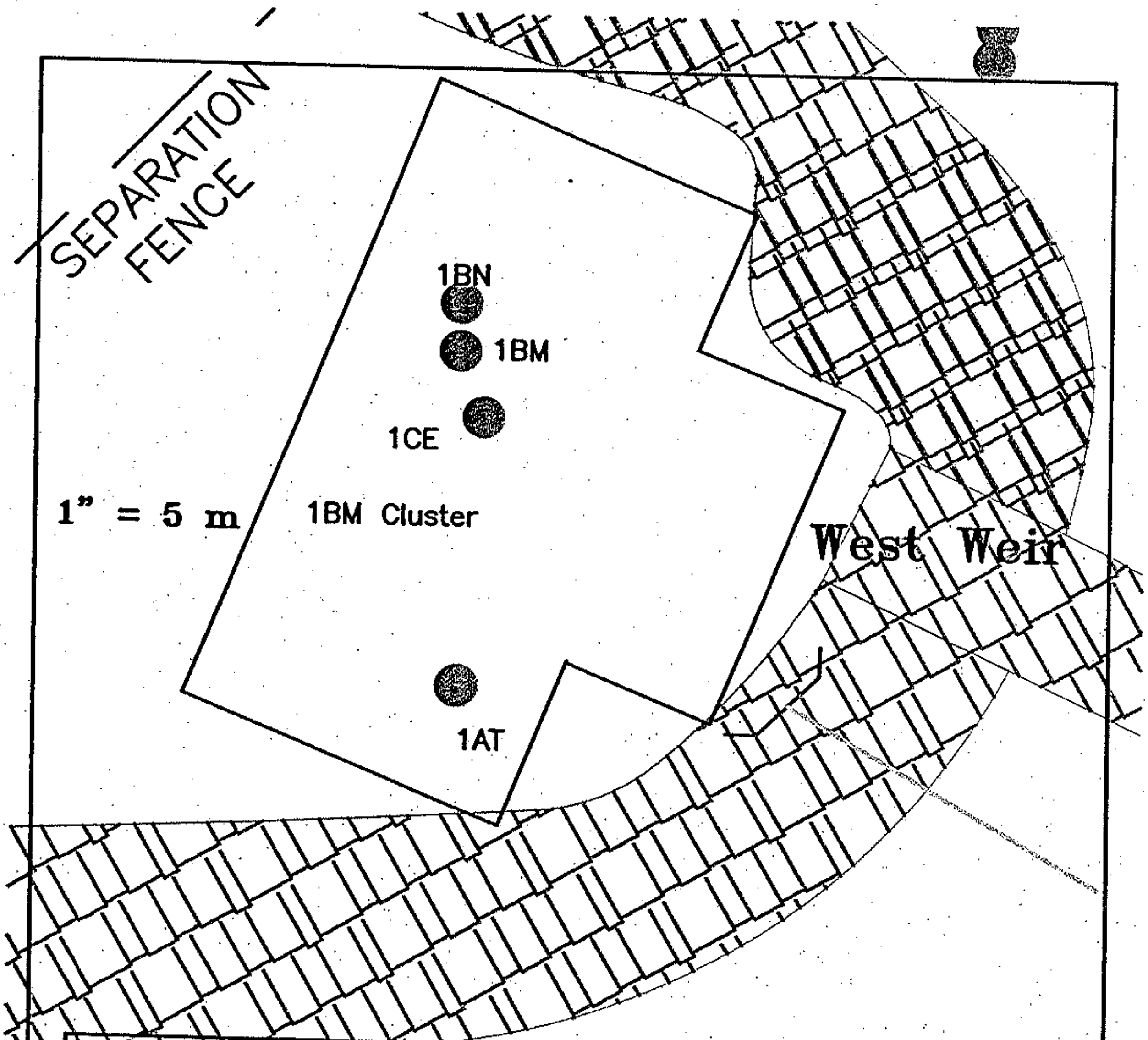

SEPARATION
FENCE
1BN
1BM
1CE
1" = 5 m
1BM Cluster
10
West Weir
1AT
Plymouth Infiltration Basin
August 2003 Source
Magnesium Concentrations
(mg/L)



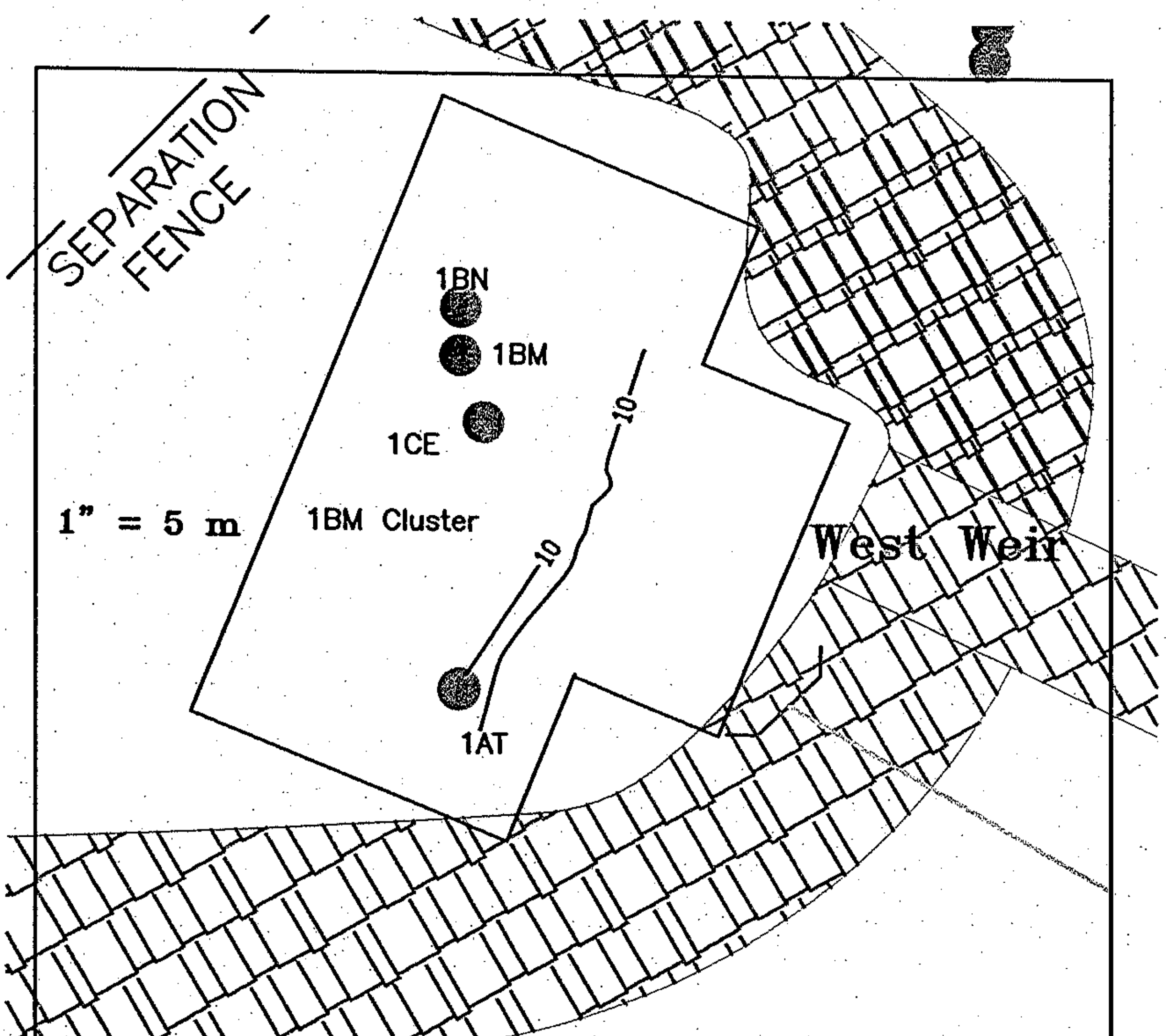
Plymouth Infiltration Basin
September 2003 Source
Magnesium Concentrations
(mg/L)



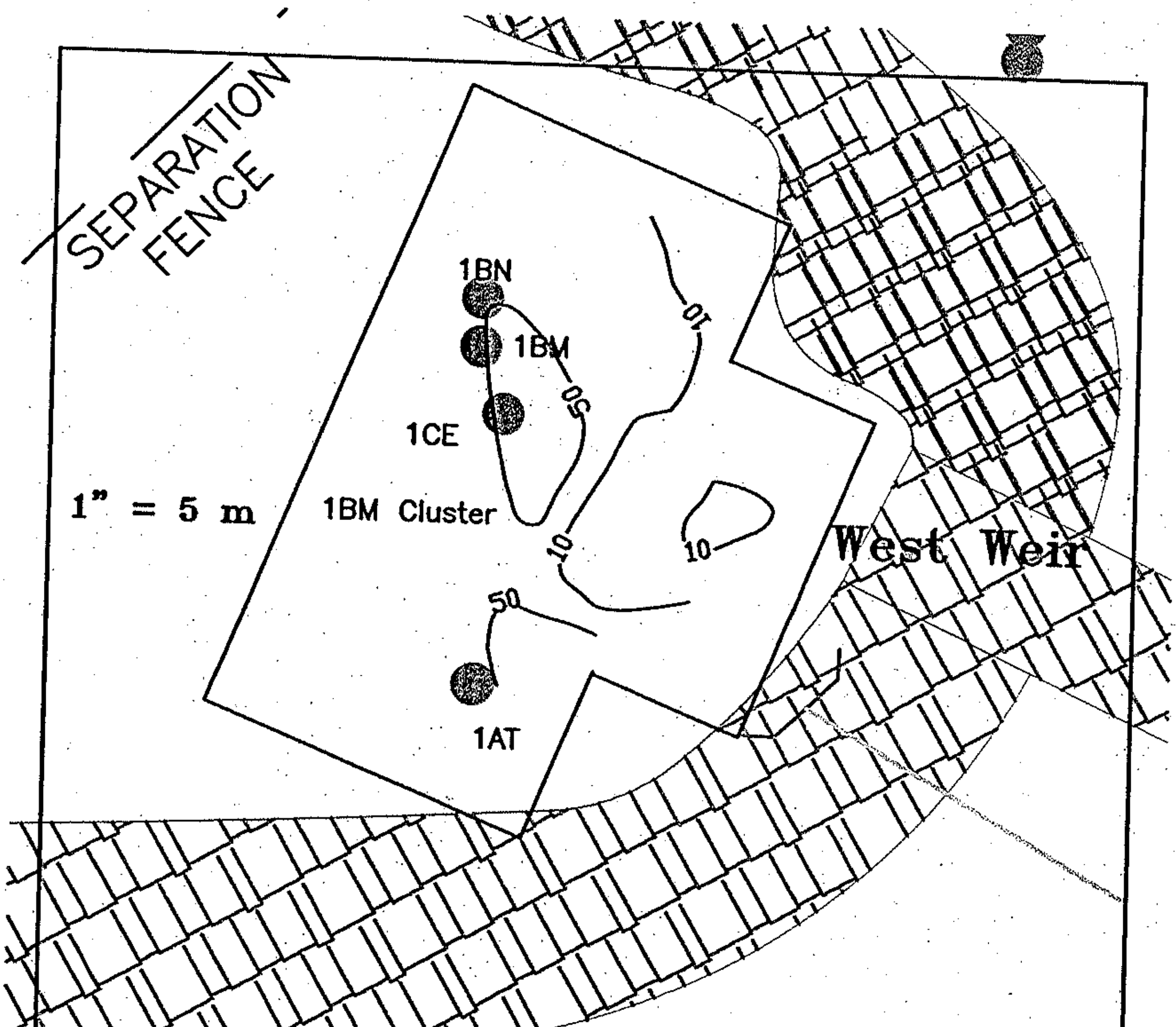
Plymouth Infiltration Basin
October 2003 Source
Magnesium Concentrations
(mg/L)



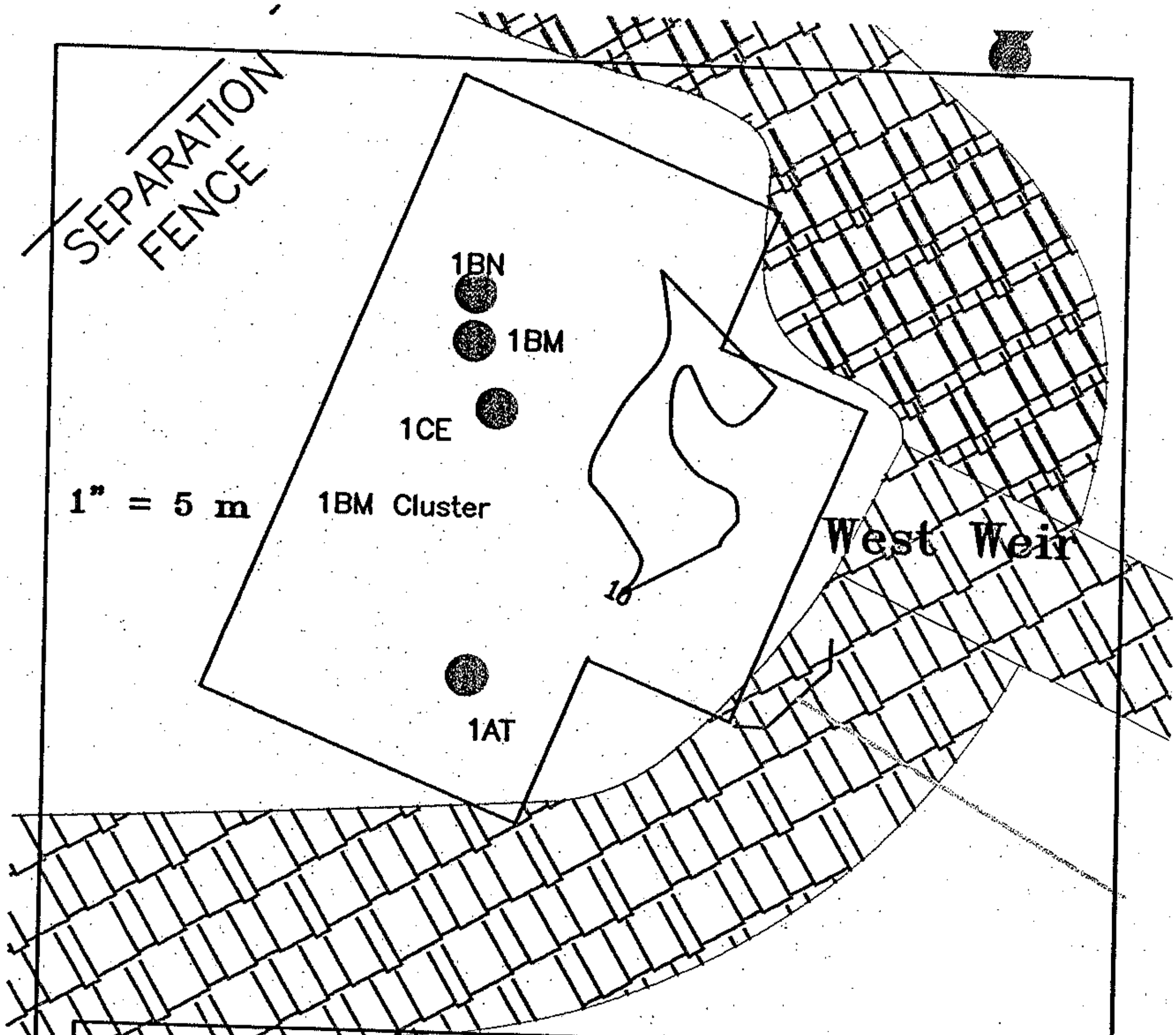
Plymouth Infiltration Basin
November 2003 Source
Magnesium Concentrations
(mg/L)



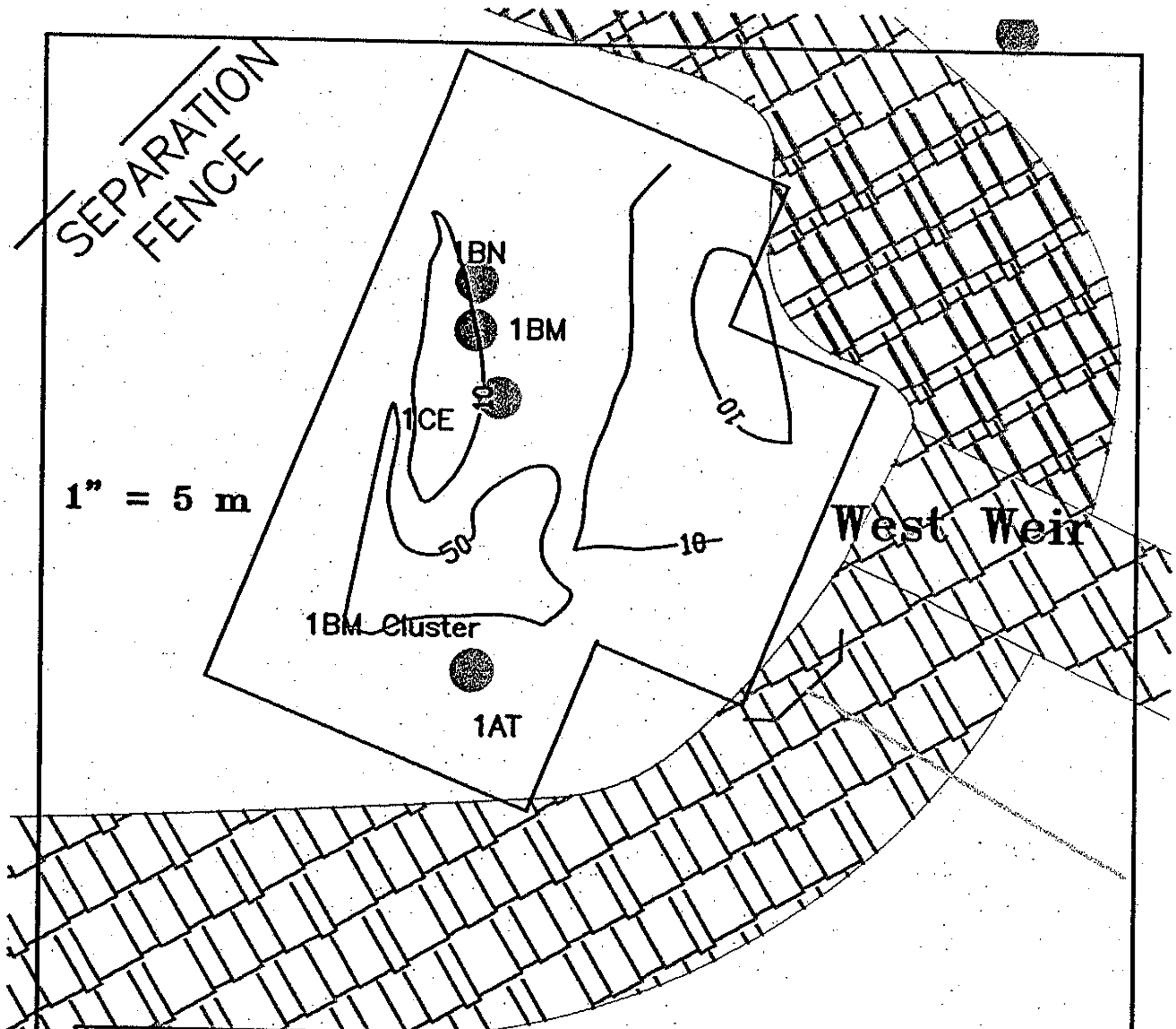
Plymouth Infiltration Basin
December 2003 Source
Magnesium Concentrations
(mg/L)



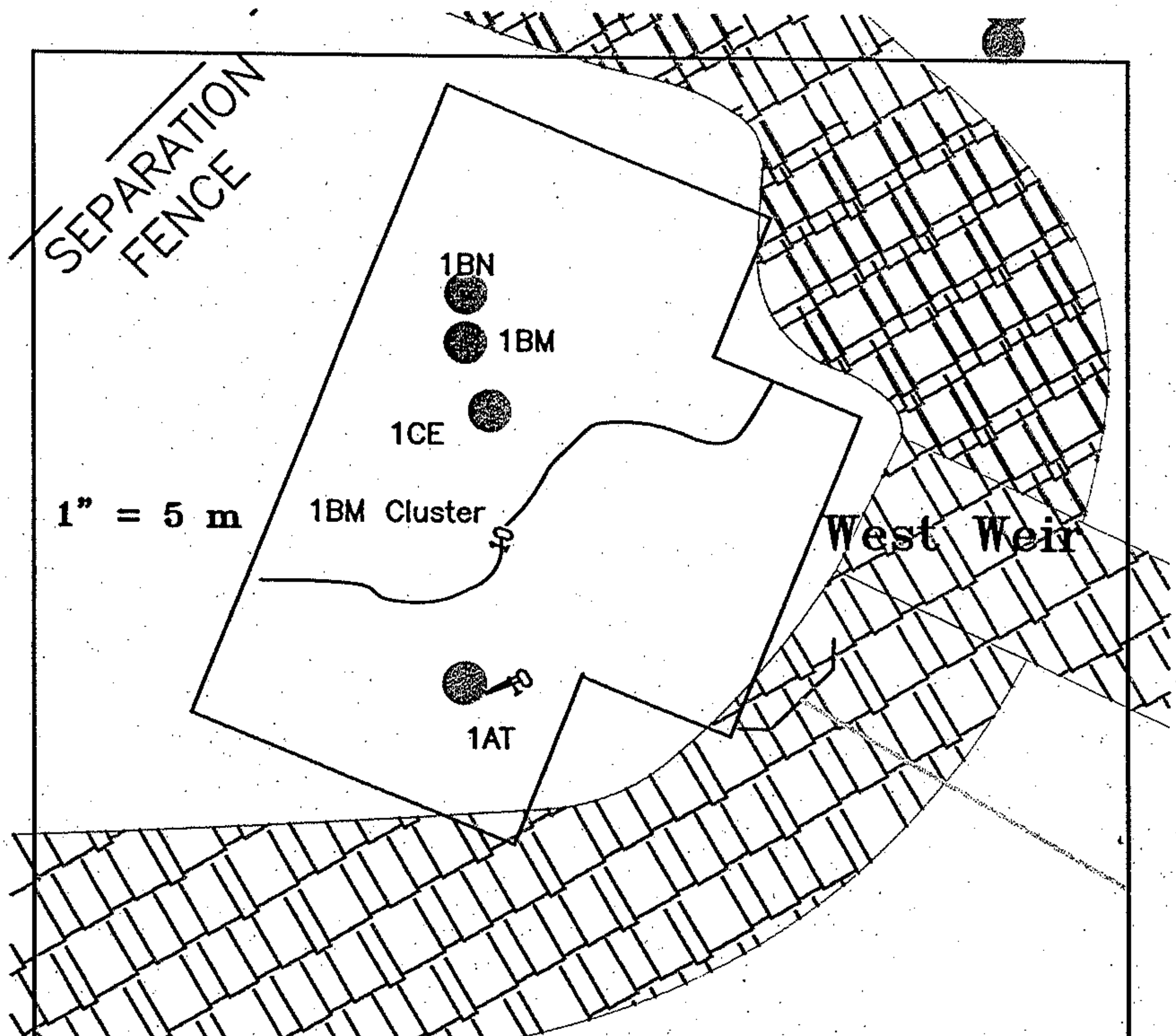
Plymouth Infiltration Basin
January 2004 Source
Magnesium Concentrations
(mg/L)



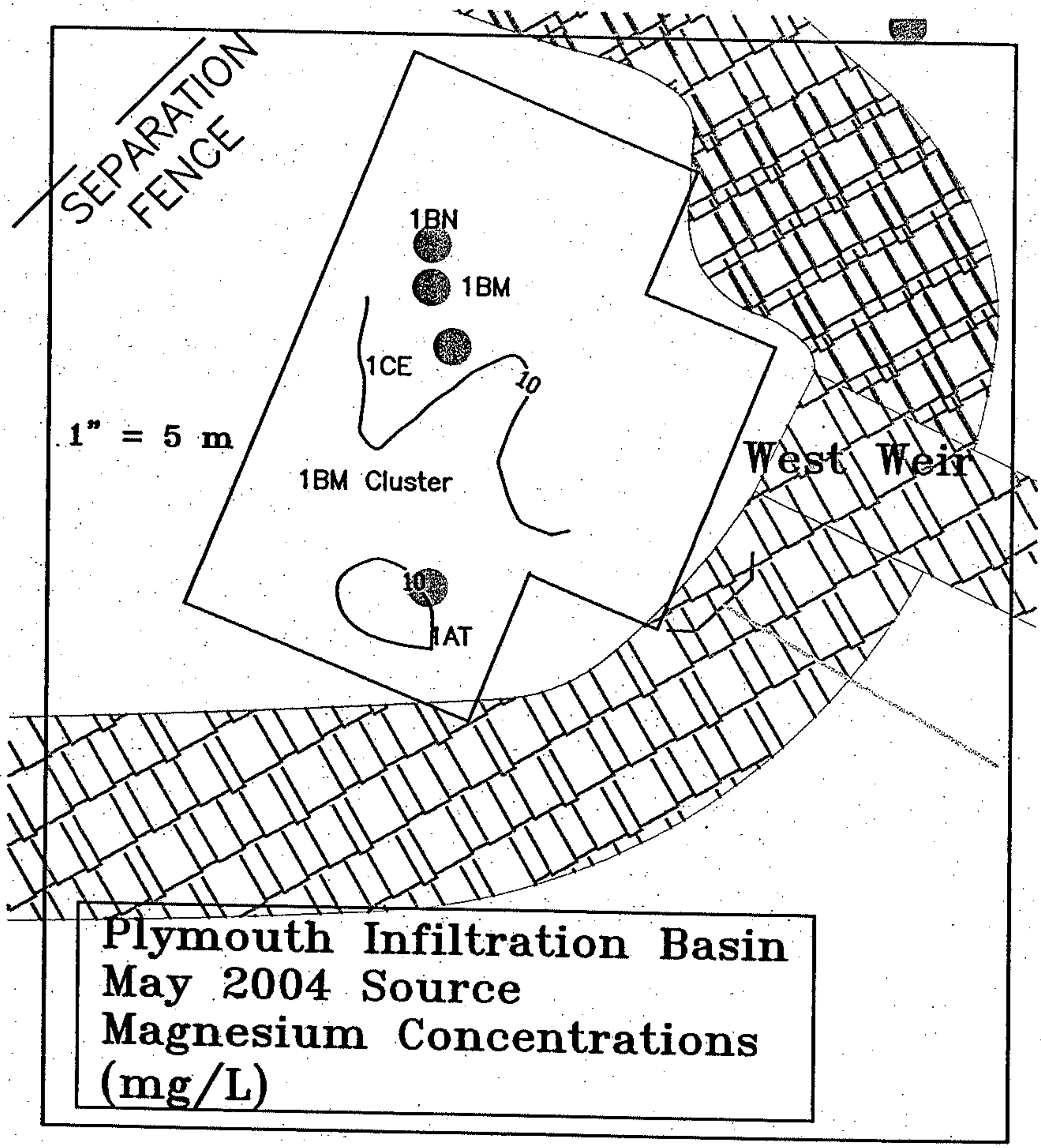
Plymouth Infiltration Basin
February 2004 Source
Magnesium Concentrations
(mg/L)



Plymouth Infiltration Basin
March 2004 Source
Magnesium Concentrations
(mg/L)



Plymouth Infiltration Basin
April 2004 Source
Magnesium Concentrations
(mg/L)


SEPARATION
FENCE
1BN
1BM
1CE
10
1" = 5 m
1BM Cluster
West Weir
10
1AT
Plymouth Infiltration Basin
May 2004 Source
Magnesium Concentrations
(mg/L)

APPENDIX M
Hindcasted Flux Data, November 2002 – May 2004

DATE	Cl Flux (mg/L * m3/mo)	Cl Flux (kg/mo)	Na Flux (mg/L * m3/mo)	Na Flux (kg/mo)	Ca Flux (mg/L * m3/mo)	Ca Flux (kg/mo)	Mg Flux (mg/L * m3/mo)	Mg Flux (kg/mo)
Nov-02	55207.9	55.2	17126.0	17.1	11205.1	11.2	18576.4	18.6
Dec-02	238749.2	238.7	134241.4	134.2	15834.7	15.8	12680.4	12.7
Jan-03	202287.1	202.3	137151.8	137.2	12756.5	12.8	13721.9	13.7
Feb-03	187519.2	187.5	111676.9	111.7	15971.2	16.0	14004.0	14.0
Mar-03	299572.2	299.6	177128.7	177.1	12775.6	12.8	12814.0	12.8
Apr-03	646378.8	646.4	371349.2	371.3	18595.8	18.6	27303.3	27.3
May-03	204960.8	205.0	131048.8	131.0	990.0	1.0	12269.0	12.3
Jun-03	86694.5	86.7	43000.9	43.0	663.8	0.7	6443.7	6.4
Jul-03	26463.9	26.5	29146.7	29.1	663.8	0.7	487.5	0.5
Aug-03	40715.9	40.7	22155.6	22.2	5292.1	5.3	3928.5	3.9
Sep-03	62085.6	62.1	47313.3	47.3	5033.2	5.0	3554.1	3.6
Oct-03	134868.9	134.9	77680.5	77.7	12776.3	12.8	9704.9	9.7
Nov-03	64034.3	64.0	31042.8	31.0	5981.5	6.0	5004.6	5.0
	2249538.3	2249.5	1330062.7	1330.1	118539.6	118.5	140492.4	140.5
- ambient	201605.7		151086.6		16316.7		14904.7	
	2047932.6	2047.9	1178976.1	1179.0	102222.9	102.2	125587.7	125.6
		3454.7	total kg/mo					
unadjusted mass ratios		0.5928		0.3413		0.0296		0.0364
		0.819	mass ratio of ions studied (excluding acetate) compared to mass of all ions, used to correct mass ratios					

	app mass ratio	inf mass ratio	error
Ca	0.026	0.024	5%
Na	0.299	0.280	7%
Cl	0.469	0.486	-4%
Mg	0.026	0.030	-16%

Ion	mg/L Mean Concentration	Meyer, 1999
Ca^{+2}	1.0	1.4
Cl^{-}	12.9	10.3
Mg^{+2}	1.0	1.5
Na^{+}	9.6	6.7

	Start X	Y	End X	Y	average Cl- (mg/L)	Na+ (mg/L)	Ca+2 (mg/L)	Mg+2 (mg/L)
1	300	445	305	450	12.7	26.1	13.4	2.8
2	300	450	305	455	3.5	--	21.0	2.9
3	305	440	310	445				
4	305	445	310	450	161.6	50.0	52.5	44.2
5	305	450	310	455				
6	310	440	315	445	52.5	19.5	0.0	9.9
7	310	445	315	450	197.8	37.2	0.0	84.4
8	310	450	315	455				
9	315	445	320	450				
10	315	450	320	455				

	Area (m2)	Cl Flux (mg/L * m3/mo)	(kg/mo)	Na Flux (mg/L * m3/mo)	(kg/mo)	Ca Flux (mg/L * m3/mo)	(kg/mo)	Mg Flux (mg/L * m3/mo)	(kg/mo)
1	25	1.64E+03	1.64	3.37E+03	3.37	1.73E+03	1.73	3.57E+02	0.36
2	25	4.45E+02	0.44	--	--	2.71E+03	2.71	3.69E+02	0.37
3									
4	25	2.08E+04	20.84	6.45E+03	6.45	6.77E+03	6.77	5.69E+03	5.69
5									
6	25	6.77E+03	6.77	2.51E+03	2.51	0.00E+00	0.00	1.27E+03	1.27
7	25	2.55E+04	25.51	4.80E+03	4.80	0.00E+00	0.00	1.09E+04	10.88
8									
9									
10									
total	125	5.52E+04	55.21	1.71E+04	17.13	1.12E+04	11.21	1.86E+04	18.58

	30	d
Monthly basin recharge rate =	1.99E-06	m/s
	5.16E+00	m/mo

Wells	X	Y	Cl- (mg/L)	Na+ (mg/L)	Ca+2 (mg/L)	Mg+2 (mg/L)	average Cl- (mg/L)	Na+ (mg/L)	Ca+2 (mg/L)	Mg+2 (mg/L)
BTj	302.767	447.697	27.9	26.1	2.3	1.3				
AT	304.034	447.735	7.3	--	24.3	6.1				
BMc	303.545	448.085	3.0	--	13.6	0.9	12.7	26.1	13.4	2.8
BMd	300.193	451.378	2.1	--	13.3	0.8				
BMa	304.614	451.451	4.8	--	28.8	4.9	3.5	--	21.0	2.9
BCe	306.19	447.614	7.4	12.1	--	--				
BCd	309.248	447.537	48.0	13.7	--	--				
BTg	309.324	446.859	429.3	124.2	52.5	44.2	161.6	50.0	52.5	44.2
BTc	311.776	443.017	55.9	19.1	0.0	11.3				
BTd	310.781	443.025	26.2	15.6	0.0	4.5				
BTa	313.468	443.199	10.5	12.9	0.0	4.0				
BTb	312.611	443.23	117.5	30.3	0.0	19.7	52.5	19.5	0.0	9.9
BTf	310.702	446.776	426.9	72.0	0.0	84.4				
BCi	310.74	447.497	163.1	31.9	--	--				
BCc	312.09	447.539	3.5	7.7	--	--	197.8	37.2	0.0	84.4

APPENDIX N
Summary of November 2002 – May 2004 West Weir Data

Note: When logger did not record data for extended time, estimate for entire month made based on precipitation.

Nov-02

Σdelta t (sec)	ΣConductivity Flux	ΣQ*delta t (m^3)
1341000	55227.97451	823.3849948
avg cond	67.07430285	uS/cm
55227.97451	uS/cm * m3/mo total monthly SC flux	

Jan-03

Σdelta t (sec)	ΣConductivity Flux	ΣQ*delta t (m^3)
1339200	2589514.00	728.02
avg cond	3556.93	uS/cm
2589514.00	uS/cm * m3/mo total monthly SC flux	

Mar-03

Σdelta t (sec)	ΣConductivity Flux	ΣQ*delta t (m^3)
2678400	11898628.28	20417.83
avg cond	582.76	uS/cm
11898628.28	uS/cm * m3/mo total monthly SC flux	

May-03

Σdelta t (sec)	ΣConductivity Flux	ΣQ*delta t (m^3)
2678400	221421.74	173.19
avg cond	1278.51	uS/cm
221421.74	uS/cm * m3/mo total monthly SC flux	

Jul-03

Σdelta t (sec)	ΣConductivity Flux	ΣQ*delta t (m^3)
2673000	124621.36	229.48
avg cond	543.06	uS/cm
124621.36	uS/cm * m3/mo total monthly SC flux	

Dec-02

Σdelta t (sec)	ΣConductivity Flux	ΣQ*delta t (m^3)
2664000	3991297.14	2287.72
avg cond	1744.66	uS/cm
3991297.14	uS/cm * m3/mo total monthly SC flux	

Feb-03

Σdelta t (sec)	ΣConductivity Flux	ΣQ*delta t (m^3)
2538000	35865433.44	39420.47
avg cond	909.82	uS/cm
35865433.44	uS/cm * m3/mo total monthly SC flux	

Apr-03

Σdelta t (sec)	ΣConductivity Flux	ΣQ*delta t (m^3)
2588400	2659610.36	1346.74
avg cond	1974.85	uS/cm
2659610.36	uS/cm * m3/mo total monthly SC flux	

Jun-03

Σdelta t (sec)	ΣConductivity Flux	ΣQ*delta t (m^3)
2592000	9253.34	38.68
avg cond	239.21	uS/cm
9253.34	uS/cm * m3/mo total monthly SC flux	

Aug-03

Σdelta t (sec)	ΣConductivity Flux	ΣQ*delta t (m^3)
2449800	198316.65	667.51
avg cond	297.10	uS/cm
198316.65	uS/cm * m3/mo total monthly SC flux	

Sep-03

Σdelta t (sec)	ΣConductivity Flux	ΣQ*delta t (m^3)
1262700	0.00	0.00
avg cond	#DIV/0!	uS/cm
0.00	uS/cm * m3/mo total monthly SC flux	

Oct-03

Σdelta t (sec)	ΣConductivity Flux	ΣQ*delta t (m^3)
2679300	121548.72	1142.36
avg cond	106.40	uS/cm
121548.72	uS/cm * m3/mo total monthly SC flux	

Nov-03

Σdelta t (sec)	ΣConductivity Flux	ΣQ*delta t (m^3)
2592000	53944.90	530.79
avg cond	101.63	uS/cm
53944.90	uS/cm * m3/mo total monthly SC flux	

Dec-03

Σdelta t (sec)	ΣConductivity Flux	ΣQ*delta t (m^3)	
1255500	5452800.28	1634.34	
avg cond	3336.38	uS/cm	
	*flux based on half month =	5452800.28	uS/cm * m3/mo
5.27	in	fell from 12/1 to 12/15	
0.62	in	fell from 12/16 to 12/31	
5.89	in		

estimate for whole month prorated based on precipitation that fell rest of month

6.09E+06 uS/cm * m3/mo
estimated monthly SC flux

Jan-04

Σdelta t (sec)	ΣConductivity Flux	ΣQ*delta t (m^3)	
2113800	9155587.27	209.90	
avg cond	43618.48	uS/cm	
	*flux based on part of month =	9155587.27	uS/cm * m3/mo
0.94	in	fell from 1/1 to 1/7	
0.69	in	fell from 1/7 to 1/31	
1.63	in		

estimate for whole month prorated based on precipitation that fell rest of month

1.59E+07 uS/cm * m3/mo
estimated monthly SC flux

Feb-04

Σdelta t (sec)	ΣConductivity Flux	ΣQ*delta t (m^3)
2010600	63206504	21663
avg cond	2917.76	uS/cm
63206504.00	uS/cm * m3/mo	
monthly SC flux		

Water backed up into weir 2/4/04 5:30 - 2/6/04 13:10 and 2/7/04 11:00 - 2/10/04 20:30: Data is excluded

Mar-04

Σdelta t (sec)	ΣConductivity Flux	ΣQ*delta t (m^3)
2678400	11898628.28	20417.83
avg cond	582.76	uS/cm
11898628.28	uS/cm * m3/mo	
	total monthly SC flux	

Apr-04

Σdelta t (sec)	ΣConductivity Flux	ΣQ*delta t (m^3)
2677800	4077953	492
avg cond	8280.31	uS/cm
4077953.47	uS/cm * m3/mo	
monthly SC flux		

Cond Measurement on 3/12/04 13:45 wrong, value del

May-04

Σdelta t (sec)	ΣConductivity Flux	ΣQ*delta t (m^3)
2317800	328956.0254	570.2354939
avg cond	576.8774988	uS/cm
328956.0254	uS/cm * m3/mo	
monthly SC flux		

APPENDIX O
CMA Report Summaries, 2002 – 2003 Deicing Season

DISTRICT FIVE MATERIALS EXPENDITURE REPORT

WEEK # ____________ ENDING 10/19/02

SECTION 5723 LOCATION WAREHAM

DATE	DAY	SALT APPLIED	SALT DELIVERED	SAND APPLIED	SAND DELIVERED	PREMIX APPLIED	PREMIX DELIVERED	ACCUM.
	Sunday							
	Monday							
	Tuesday							
	Wednesday							
	Thursday							
	Friday							
	Saturday							
	TOTAL							

			SALT	SAND	PREMIX	CMA	
Tons On Hand Last Report			500 ~~543~~	200 ~~251~~	23	90 ~~92~~	
Tons Delivered			—	—	—	—	
Total			~~500~~	200	23	90	
Tons Applied			—	—	—	—	
Tons On Hand			~~500~~	200	23	90	

Accumulation: Inches D - Drifting F- Frost I- Ice

NOTE: To estimate materials on hand: 135 tons per 12' bay at water level

This report is to be submitted to the Snow and Ice Control Engineer every Monday morning regardless of activity from the first Material Delivery to the end of April. On back of sheet list P.O. numbers for sand and salt delivery received
Balance On Hand shown on this report should equal the amount of material you have.

LIQ.CALCIUM	
ON HAND	1581
DEL.	
APPL.	
TOT.	1581

CONVERSION FACTOR
1 Cubic Yard Sand = 1.5 ton(3000lbs.)
1 Cubic Yard Salt = 1.0 ton(2000lbs.)
1 Cubic Yard Premix = 1.0 ton(2000lbs.)

[signature]
Highway Repair Foreman

Highway Maintenance Foreman

DISTRICT FIVE MATERIALS EXPENDITURE REPORT

WEEK # #43-03 ENDING 10/26/02

SECTION 5723 LOCATION WAREHAM

DATE	DAY	SALT APPLIED	SALT DELIVERED	SAND APPLIED	SAND DELIVERED	PREMIX APPLIED	PREMIX DELIVERED	ACCUM.
	Sunday							
	Monday							
	Tuesday							
	Wednesday							
	Thursday							
	Friday							
	~~Saturday~~							
	TOTAL							

		SALT	SAND	PREMIX		CMA
Tons On Hand Last Report		500	300	23		90
Tons Delivered		—	—	—		—
Total		500	300	23		90
Tons Applied		—	—	—		—
Tons On Hand		500	300	23		90

Accumulation: Inches D.- Drifting F- Frost I- Ice

NOTE: To estimate materials on hand: 135 tons per 12' bay at water level

LIQ.CALCIUM	
ON HAND	1581
DEL.	
APPL.	
TOT.	1581

This report is to be submitted to the Snow and Ice Control Engineer every Monday morning regardless of activity from the first Material Delivery to the end of April. On back of sheet list P.O. numbers for sand and salt delivery received **Balance On Hand shown on this report should equal the amount of material you have.**

CONVERSION FACTOR
1 Cubic Yard Sand = 1.5 ton(3000lbs.)
1 Cubic Yard Salt = 1.0 ton(2000lbs.)
1 Cubic Yard Premix = 1.0 ton(2000lbs.)

[signature]
Highway Repair Foreman

Highway Maintenance Foreman

DISTRICT FIVE MATERIALS EXPENDITURE REPORT

WEEK # ______ ENDING 11/2/02

SECTION 5723 LOCATION WAREHAM

		SALT		SAND		PREMIX		
DATE	DAY	APPLIED	DELIVERED	APPLIED	DELIVERED	APPLIED	DELIVERED	ACCUM.
	Sunday							
	Monday							
	Tuesday							
	Wednesday							
	Thursday							
	Friday							
	~~Saturday~~							
	TOTAL							

			SALT	SAND	PREMIX		CMA
Tons On Hand Last Report			500	300	23		90
Tons Delivered			—	—	—		
Total			500	300	23		90
Tons Applied			—		—		
Tons On Hand			500	300	23		90

Accumulation: Inches D - Drifting F- Frost I- Ice

NOTE: To estimate materials on hand: 135 tons per 12' bay at water level.

This report is to be submitted to the Snow and Ice Control Engineer every Monday morning regardless of activity from the first Material Delivery to the end of April. On back of sheet list P.O. numbers for sand and salt delivery received **Balance On Hand shown on this report should equal the amount of material you have.**

LIQ.CALCIUM	
ON HAND	1581
DEL.	
APPL.	
TOT.	

CONVERSION FACTOR
1 Cubic Yard Sand = 1.5 ton(3000lbs.)
1 Cubic Yard Salt = 1.0 ton(2000lbs.)
1 Cubic Yard Premix = 1.0 ton(2000lbs.)

Paul E. O
Highway Repair Foreman

Highway Maintenance Foreman

DISTRICT FIVE MATERIALS EXPENDITURE REPORT

WEEK #. #19 ENDING 11/9/02

SECTION 5723 LOCATION WAREHAM

		SALT		SAND		PREMIX		
DATE	DAY	APPLIED	DELIVERED	APPLIED	DELIVERED	APPLIED	DELIVERED	ACCUM.
	Sunday							
	Monday							
	Tuesday	4						F
	Wednesday							
	Thursday							
	Friday							
	Saturday							
	TOTAL							

			SALT	SAND	PREMIX		CMA
Tons On Hand Last Report			500	200	23		90
Tons Delivered			—	—	—		—
Total			500	200	23		90
Tons Applied			4	—	—		—
Tons On Hand			496	200	23		90

Accumulation: Inches D - Drifting F- Frost I- Ice

NOTE: To estimate materials on hand: 135 tons per 12' bay at water level

This report is to be submitted to the Snow and Ice Control Engineer every Monday morning regardless of activity from the first Material Delivery to the end of April. On back of sheet list P.O. numbers for sand and salt delivery received

Balance On Hand shown on this report should equal the amount of material you have.

LIQ.CALCIUM	
ON HAND	1581
DEL.	
APPL.	
TOT.	1581

CONVERSION FACTOR
1 Cubic Yard Sand = 1.5 ton(3000lbs.)
1 Cubic Yard Salt = 1.0 ton(2000lbs.)
1 Cubic Yard Premix = 1.0 ton(2000lbs.)

Highway Repair Foreman

Highway Maintenance Foreman

DISTRICT FIVE MATERIALS EXPENDITURE REPORT

WEEK # #20 ENDING 11/16/02

SECTION 5723 LOCATION WAREHAM

DATE	DAY	SALT APPLIED	SALT DELIVERED	SAND APPLIED	SAND DELIVERED	PREMIX APPLIED	PREMIX DELIVERED	ACCUM.
	Sunday							
	Monday							
	Tuesday							
	Wednesday							
	Thursday							
	Friday							
	~~Saturday~~							
	TOTAL							

			SALT	SAND	PREMIX		CMA
Tons On Hand Last Report			496	200	23		90
Tons Delivered			—	—	—	—	—
Total			496	200	23		90
Tons Applied			—	—	—		—
Tons On Hand			496	200	23		90

Accumulation: Inches D - Drifting F- Frost I- Ice

NOTE: To estimate materials on hand: 135 tons per 12' bay at water level

LIQ.CALCIUM	
ON HAND	1581
DEL.	
APPL.	
TOT.	1581

This report is to be submitted to the Snow and Ice Control Engineer every Monday morning regardless of activity from the first Material Delivery to the end of April. On back of sheet list P.O. numbers for sand and salt delivery received

Balance On Hand shown on this report should equal the amount of material you have.

CONVERSION FACTOR

1 Cubic Yard Sand = 1.5 ton(3000lbs.)
1 Cubic Yard Salt = 1.0 ton(2000lbs.)
1 Cubic Yard Premix = 1.0 ton(2000lbs.)

Carl E. C[illegible]
Highway Repair Foreman

Highway Maintenance Foreman

MAINTENANCE COPY

DISTRICT FIVE MATERIALS EXPENDITURE REPORT

WEEK # #21 ENDING 11/23/02

SECTION 5723 LOCATION WAREHAM

		SALT		SAND		PREMIX		
DATE	DAY	APPLIED	DELIVERED	APPLIED	DELIVERED	APPLIED	DELIVERED	ACCUM.
	Sunday							
	Monday							
	Tuesday							
	Wednesday							
	Thursday							
	Friday							
	Saturday							
	TOTAL							

			SALT	SAND	PREMIX		CMA
Tons On Hand Last Report			496	200	23		90
Tons Delivered			420	—	—		—
Total			916	200	23		90
Tons Applied			—	—	—		—
Tons On Hand			916	000	23		90

Accumulation: Inches D - Drifting F- Frost I- Ice

NOTE: To estimate materials on hand: 135 tons per 12' bay at water level

This report is to be submitted to the Snow and Ice Control Engineer every Monday morning regardless of activity from the first Material Delivery to the end of April. On back of sheet list P.O. numbers for sand and salt delivery received

Balance On Hand shown on this report should equal the amount of material you have.

LIQ.CALCIUM	
ON HAND	1581
DEL.	
APPL.	
TOT.	1581

CONVERSION FACTOR

1 Cubic Yard Sand = 1.5 ton(3000lbs.)
1 Cubic Yard Salt = 1.0 ton(2000lbs.)
1 Cubic Yard Premix = 1.0 ton(2000lbs.)

[signature]
Highway Repair Foreman

Highway Maintenance Foreman

DISTRICT FIVE MATERIALS EXPENDITURE REPORT

WEEK # #22 ENDING 11/30/02

SECTION 5723 LOCATION WAREHAM

		SALT		SAND		PREMIX		CMA
DATE	DAY	APPLIED	DELIVERED	APPLIED	DELIVERED	APPLIED	DELIVERED	ACCUM.
11/24	Sunday							
25	Monday							
26	Tuesday							
27	Wednesday	60		25				4 Ton
28	Thursday							
29	Friday							
30	Saturday							
	TOTAL	60		25				

	SALT	SAND	PREMIX		CMA
Tons On Hand Last Report	916	200	23		90
Tons Delivered	—	—	—		—
Total	916	200	23		90
Tons Applied	60	25	—		4
Tons On Hand	856	175	23		86

Accumulation: Inches D - Drifting F- Frost I- Ice

NOTE: To estimate materials on hand: 135 tons per 12' bay at water level

This report is to be submitted to the Snow and Ice Control Engineer every Monday morning regardless of activity from the first Material Delivery to the end of April. On back of sheet list P.O. numbers for sand and salt delivery received **Balance On Hand shown on this report should equal the amount of material you have.**

LIQ.CALCIUM	
ON HAND	1581
DEL.	
APPL.	
TOT.	1581

CONVERSION FACTOR
1 Cubic Yard Sand = 1.5 ton(3000lbs.)
1 Cubic Yard Salt = 1.0 ton(2000lbs.)
1 Cubic Yard Premix = 1.0 ton(2000lbs.)

Highway Repair Foreman

Highway Maintenance Foreman

MAINTENANCE COPY

DISTRICT FIVE MATERIALS EXPENDITURE REPORT

WEEK # #23 ENDING 12/7/02

SECTION 5723 LOCATION WAREHAM

		SALT		SAND		PREMIX			
DATE	DAY	APPLIED	DELIVERED	APPLIED	DELIVERED	APPLIED	DELIVERED	ACCUM.	CMH
Dec 1	Sunday								
2	Monday								
3	Tuesday	200	1756 Fri	60	175	10	—	—	6
4	Wednesday								
5	Thursday	100		20		–			5
6	Friday	150		30		–			7
7	Saturday								
	TOTAL	350		110		10			18

			SALT	SAND	PREMIX		CMA
Tons On Hand Last Report			856	175	23		86
Tons Delivered			—	—			—
Total			856	175	23		86
Tons Applied			350	110	10		16
Tons On Hand			506	65	13		70

Accumulation: Inches D - Drifting F- Frost I- Ice

NOTE: To estimate materials on hand: 135 tons per 12' bay at water level

LIQ.CALCIUM	
ON HAND	1581
DEL.	
APPL.	
TOT.	1581

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CONVERSION FACTOR
1 Cubic Yard Sand = 1.5 ton(3000lbs.)
1 Cubic Yard Salt = 1.0 ton(2000lbs.)
1 Cubic Yard Premix = 1.0 ton(2000lbs.)

Highway Repair Foreman

Highway Maintenance Foreman

MAINTENANCE COPY

DISTRICT FIVE MATERIALS EXPENDITURE REPORT

WEEK # #24 ENDING 12/14/02

SECTION 5723 LOCATION WAREHAM

DATE	DAY	SALT APPLIED	SALT DELIVERED	SAND APPLIED	SAND DELIVERED	PREMIX APPLIED	PREMIX DELIVERED	ACCUM.	CMA
Dec 8	Sunday								
9	Monday								
10	Tuesday								
11	Wednesday					491			
12	Thursday	30		10		298		Frost	1
13	Friday	10		—				Frost	
14	Saturday								
	TOTAL	40		10		798			1

	SALT	SAND	PREMIX		CMA
Tons On Hand Last Report	~~856~~ 506	175	23		~~80~~ 70
Tons Delivered	—	798	—		—
Total	856	973	23		~~86~~ 70
Tons Applied	40	10	—		1
Tons On Hand	~~816~~ 466	963	23		~~85~~ 69

Accumulation: Inches D- Drifting F- Frost I- Ice

NOTE: To estimate materials on hand: 135 tons per 12' bay at water level

LIQ.CALCIUM	
ON HAND	1581
DEL.	
APPL.	
TOT.	1581

This report is to be submitted to the Snow and Ice Control Engineer every Monday morning regardless of activity from the first Material Delivery to the end of April. On back of sheet list P.O. numbers for sand and salt delivery received

Balance On Hand shown on this report should equal the amount of material you have

CONVERSION FACTOR

1 Cubic Yard Sand = 1.5 ton(3000lbs.)
1 Cubic Yard Salt = 1.0 ton(2000lbs.)
1 Cubic Yard Premix = 1.0 ton(2000lbs.)

[signature]
Highway Repair Foreman

Highway Maintenance Foreman

MAINTENANCE COPY

DISTRICT FIVE MATERIALS EXPENDITURE REPORT

WEEK # #85 ENDING 12/21/02

SECTION 5723 LOCATION WAREHAM

		SALT		SAND		PREMIX		
DATE	DAY	APPLIED	DELIVERED	APPLIED	DELIVERED	APPLIED	DELIVERED	ACCUM.
12-15	Sunday							
16	Monday	85	285.6	30		—		ICE 4
17	Tuesday							
18	Wednesday							
19	Thursday							
20	Friday							
21	Saturday							
	TOTAL	85	285.6	30				4

			SALT	SAND	PREMIX		CMA
Tons On Hand Last Report			466	963	23		70
Tons Delivered			285.6	—	—		—
Total			751	963	23		70
Tons Applied			85	30	—		4
Tons On Hand			666	933	23		66

Accumulation: Inches D - Drifting F- Frost I- Ice

NOTE: To estimate materials on hand: 135 tons per 12' bay at water level

LIQ.CALCIUM	
ON HAND	1581
DEL.	780
APPL.	—
TOT.	2351

This report is to be submitted to the Snow and Ice Control Engineer every Monday morning regardless of activity from the first Material Delivery to the end of April. On back of sheet list P.O. numbers for sand and salt delivery received

Balance On Hand shown on this report should equal the amount of material you have.

CONVERSION FACTOR

1 Cubic Yard Sand = 1.5 ton(3000lbs.)
1 Cubic Yard Salt = 1.0 ton(2000lbs.)
1 Cubic Yard Premix = 1.0 ton(2000lbs.)

Highway Repair Foreman

Highway Maintenance Foreman

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DISTRICT FIVE MATERIALS EXPENDITURE REPORT

WEEK # #26 ENDING 12/28/02

SECTION 5723 LOCATION WAREHAM

		SALT		SAND		PREMIX		
DATE	DAY	APPLIED	DELIVERED	APPLIED	DELIVERED	APPLIED	DELIVERED	ACCUM.
Dec 22	Sunday							
23	Monday							
24	Tuesday							
25	Wednesday	60		15		—		
26	Thursday	106		35		23		1½"
27	Friday							
28	Saturday							
	TOTAL	166						

CMA

F
I

		SALT	SAND	PREMIX		CMA
Tons On Hand Last Report		666	933	23		66
Tons Delivered		—	—	—		—
Total		666	933	23		66
Tons Applied		166	50	23		5
Tons On Hand		500	883	0		61

Accumulation: Inches D - Drifting F- Frost I- Ice

NOTE: To estimate materials on hand: 135 tons per 12' bay at water level

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Balance On Hand shown on this report should equal the amount of material you have.

LIQ.CALCIUM	
ON HAND	2357
DEL.	
APPL.	
TOT.	2357

CONVERSION FACTOR

1 Cubic Yard Sand = 1.5 ton(3000lbs.)
1 Cubic Yard Salt = 1.0 ton(2000lbs.)
1 Cubic Yard Premix = 1.0 ton(2000lbs.)

Highway Repair Foreman

Highway Maintenance Foreman

MAINTENANCE COPY

DISTRICT FIVE MATERIALS EXPENDITURE REPORT

WEEK # #27 ENDING 1/4/03

SECTION 5723 LOCATION WAREHAM

DATE	DAY	SALT APPLIED	SALT DELIVERED	SAND APPLIED	SAND DELIVERED	PREMIX APPLIED	PREMIX DELIVERED	ACCUM.	CMA
Dec 29	Sunday	10						FROST	
30	Monday		665.86				108.64		
31	Tuesday	65		20		20		'	1.5
Jan 1	Wednesday								
2	Thursday	40	-	15		15		T	1
3	Friday								
4	Saturday	75		30		30		Ice	1.0
	TOTAL	190		65		130			5

	SALT	SAND	PREMIX		CMA
Tons On Hand Last Report	500	883	0		61
Tons Delivered	666	—	—		—
Total	1166	883	109		61
Tons Applied	190	65	65		5
Tons On Hand	976	878	44		56

Accumulation: Inches D - Drifting F- Frost I- Ice

NOTE: To estimate materials on hand: 135 tons per 12' bay at water level

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Balance On Hand shown on this report should equal the amount of material you have.

LIQ.CALCIUM	
ON HAND	2351
DEL.	
APPL.	
TOT.	2351

CONVERSION FACTOR

1 Cubic Yard Sand = 1.5 ton(3000lbs.)
1 Cubic Yard Salt = 1.0 ton(2000lbs.)
1 Cubic Yard Premix = 1.0 ton(2000lbs.)

Highway Repair Foreman

Highway Maintenance Foreman

DISTRICT FIVE MATERIALS EXPENDITURE REPORT

WEEK # #28 ENDING 1/11/03

SECTION 5723 LOCATION WAREHAM

		SALT		SAND		PREMIX			CMA
DATE	DAY	APPLIED	DELIVERED	APPLIED	DELIVERED	APPLIED	DELIVERED	ACCUM.	
	Sunday	20		10		10		{1/2"	.5
	Monday	120		30		30			1.5
	Tuesday	135		20		—		3/4"	2.5
	Wednesday	80		20		—			.5
	Thursday								
	Friday								
	Saturday								
	TOTAL	355		80		40			6.5

			SALT	SAND	PREMIX		CMA
Tons On Hand Last Report			976	818	44		56
Tons Delivered			—	—	—		—
Total			976	818	44		56
Tons Applied			355	80	40		6.5
Tons On Hand			621	738	4		49.5

Accumulation: Inches D - Drifting F- Frost I- Ice

NOTE: To estimate materials on hand: 135 tons per 12' bay at water level

LIQ.CALCIUM	
ON HAND	2351
DEL.	
APPL.	
TOT.	2351

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Balance On Hand shown on this report should equal the amount of material you have

CONVERSION FACTOR
1 Cubic Yard Sand = 1.5 ton(3000lbs.)
1 Cubic Yard Salt = 1.0 ton(2000lbs.)
1 Cubic Yard Premix = 1.0 ton(2000lbs.)

[signature]
Highway Repair Foreman

Highway Maintenance Foreman

MAINTENANCE COPY

DISTRICT FIVE MATERIALS EXPENDITURE REPORT

WEEK # #29 ENDING 1/18/03

SECTION 5723 LOCATION WAREHAM

		SALT		SAND		PREMIX		
DATE	DAY	APPLIED	DELIVERED	APPLIED	DELIVERED	APPLIED	DELIVERED	ACCUM.
Jan 12	Sunday							
13	Monday							
14	Tuesday							
15	Wednesday						179.19	
16	Thursday							
17	Friday	85	419.7					
18	Saturday							
	TOTAL		419.7				179.19	
				SALT	SAND	PREMIX		CMA
Tons On Hand Last Report			(;	621	738	4		495
Tons Delivered				419	—	179		—
Total				1040	738	183		495
Tons Applied				85	40	40		4
Tons On Hand				955	698	153		491

Accumulation: Inches D - Drifting F- Frost I- Ice

NOTE: To estimate materials on hand: 135 tons per 12' bay at water level.

This report is to be submitted to the Snow and Ice Control Engineer every Monday morning regardless of activity from the first Material Delivery to the end of April. On back of sheet list P.O. numbers for sand and salt delivery received
Balance On Hand shown on this report should equal the amount of material you have.

LIQ.CALCIUM	
ON HAND	2351
DEL.	
APPL.	
TOT.	2351

CONVERSION FACTOR
1 Cubic Yard Sand = 1.5 ton(3000lbs.)
1 Cubic Yard Salt = 1.0 ton(2000lbs.)
1 Cubic Yard Premix = 1.0 ton(2000lbs.)

[signature]
Highway Repair Foreman

Highway Maintenance Foreman

MAINTENANCE COPY

DISTRICT FIVE MATERIALS EXPENDITURE REPORT

WEEK # #30 ENDING 1/25/03

SECTION 5723 LOCATION WAREHAM

		SALT		SAND		PREMIX		
DATE	DAY	APPLIED	DELIVERED	APPLIED	DELIVERED	APPLIED	DELIVERED	ACCUM.
1/19	Sunday	30		15		15		
	Monday							
	Tuesday							
	Wednesday							
	Thursday							
	Friday	—		20		30		
	Saturday							
	TOTAL	30		25		45		

CMA 1

	SALT	SAND	PREMIX	CMA
Tons On Hand Last Report	991	698	143	.45 ADJUSTED
Tons Delivered	—	—	—	—
Total	991	698	143	45
Tons Applied	30	25	45	1
Tons On Hand	961	673	98	44

Accumulation: Inches D - Drifting F- Frost I- Ice

NOTE: To estimate materials on hand: 135 tons per 12' bay at water level

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Balance On Hand shown on this report should equal the amount of material you have.

LIQ.CALCIUM	
ON HAND	2351
DEL.	
APPL.	
TOT.	2351

CONVERSION FACTOR

1 Cubic Yard Sand = 1.5 ton(3000lbs.)
1 Cubic Yard Salt = 1.0 ton(2000lbs.)
1 Cubic Yard Premix = 1.0 ton(2000lbs.)

Paul E. [illegible]
Highway Repair Foreman

Highway Maintenance Foreman

MAINTENANCE COPY

DISTRICT FIVE MATERIALS EXPENDITURE REPORT

WEEK # #31 ENDING 2/1/03

SECTION 5723 LOCATION WAREHAM

DATE	DAY	SALT APPLIED	SALT DELIVERED	SAND APPLIED	SAND DELIVERED	PREMIX APPLIED	PREMIX DELIVERED	ACCUM.
Jan 26	Sunday	\						
27	Monday							
	Tuesday	40		15		15		1/4"
	Wednesday	10		30				Forest
	Thursday	45		15		15		
	Friday							
Feb. 1	Saturday	20		10		10		
	TOTAL	115		60		40		

CM 1 8 2

		SALT	SAND	PREMIX		CMA
Tons On Hand Last Report		961	673	98		44
Tons Delivered		—	—	—		—
Total		961	673	98		44
Tons Applied		115	60	40		2
Tons On Hand		846	613	58		42

Accumulation: Inches. D - Drifting F- Frost I- Ice

NOTE: To estimate materials on hand: 135 tons per 12' bay at water level

LIQ.CALCIUM	
ON HAND	2351
DEL.	
APPL.	
TOT.	2351

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Balance On Hand shown on this report should equal the amount of material you have.

CONVERSION FACTOR

1 Cubic Yard Sand = 1.5 ton(3000lbs.)
1 Cubic Yard Salt = 1.0 ton(2000lbs.)
1 Cubic Yard Premix = 1.0 ton(2000lbs.)

Highway Repair Foreman

Highway Maintenance Foreman

MAINTENANCE UNIT

DISTRICT FIVE MATERIALS EXPENDITURE REPORT

WEEK # #32 ENDING 2/8/03

SECTION 5723 LOCATION WAREHAM

		SALT		SAND		PREMIX			
DATE	DAY	APPLIED	DELIVERED	APPLIED	DELIVERED	APPLIED	DELIVERED	ACCUM.	CMA
2-2	Sunday	60		20		20		½	1
	Monday	80		10		10			
	Tuesday								—
	Wednesday								—
	Thursday								—
	Friday	400		60		26		9"	7
	Saturday	6		—					
	TOTAL	546		90		50		I	8

		SALT	SAND	PREMIX		CMA
Tons On Hand Last Report		846	613	58		42
Tons Delivered		—	—	—		—
Total		846	613	58		42
Tons Applied		546	90	50		7
Tons On Hand		300	523	8		35

Accumulation: Inches D - Drifting F- Frost I- Ice

NOTE: To estimate materials on hand: 135 tons per 12' bay at water level

LIQ.CALCIUM	
ON HAND	2351
DEL.	
APPL.	
TOT.	2351

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Balance On Hand shown on this report should equal the amount of material you have.

CONVERSION FACTOR

1 Cubic Yard Sand = 1.5 ton(3000lbs.)

1 Cubic Yard Salt = 1.0 ton(2000lbs.)

1 Cubic Yard Premix = 1.0 ton(2000lbs.)

[signature]

Highway Repair Foreman

Highway Maintenance Foreman

MAINTENANCE COPY

DISTRICT FIVE MATERIALS EXPENDITURE REPORT

WEEK # #33 ENDING 2/15/03

SECTION 5723 LOCATION WAREHAM

		SALT		SAND		PREMIX			
DATE	DAY	APPLIED	DELIVERED	APPLIED	DELIVERED	APPLIED	DELIVERED	ACCUM.	CM#1
	Sunday								
	Monday	190	~~98.62~~	40		8		3½	5
	Tuesday	40	376.77	10		—			1
	Wednesday	30		5		0		1"	1
	Thursday								
	Friday	✓	600.81						
	Saturday								
	TOTAL	260	1076.20	55					7

			SALT	SAND	PREMIX		CMA
Tons On Hand Last Report			300	523	8		35
Tons Delivered			1076.2	—	—		—
Total			1376	523	8		35
Tons Applied			260	55	8		7
Tons On Hand			1116	468	0		28

Accumulation: Inches D - Drifting F- Frost I- Ice

NOTE: To estimate materials on hand: 135 tons per 12' bay at water level

LIQ.CALCIUM	
ON HAND	2351
DEL.	
APPL.	
TOT.	2351

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Balance On Hand shown on this report should equal the amount of material you have.

CONVERSION FACTOR

1 Cubic Yard Sand = 1.5 ton(3000lbs.)
1 Cubic Yard Salt = 1.0 ton(2000lbs.)
1 Cubic Yard Premix = 1.0 ton(2000lbs.)

Highway Repair Foreman

Highway Maintenance Foreman

DISTRICT FIVE MATERIALS EXPENDITURE REPORT

WEEK # #34 ENDING 2/22/03

SECTION 5723 LOCATION WAREHAM

DATE	DAY	SALT APPLIED	SALT DELIVERED	SAND APPLIED	SAND DELIVERED	PREMIX APPLIED	PREMIX DELIVERED	ACCUM.	CMA
	Sunday								
	Monday	180		70		—		18¼	10
	Tuesday	180		60		—		18¼	5
	Wednesday								
	Thursday	40		10		—		Frost	
	Friday								
	Saturday								
	TOTAL	400		140					

	SALT	SAND	PREMIX		CMA
Tons On Hand Last Report	1116	468	0		28
Tons Delivered	—	—	—		—
Total	1116	468	0		28
Tons Applied	400	140	—		15
Tons On Hand	716	328	0		13

Accumulation: Inches D - Drifting F- Frost I- Ice

NOTE: To estimate materials on hand: 135 tons per 12' bay at water level

This report is to be submitted to the Snow and Ice Control Engineer every Monday morning regardless of activity from the first Material Delivery to the end of April. On back of sheet list P.O. numbers for sand and salt delivery received

Balance On Hand shown on this report should equal the amount of material you have.

LIQ.CALCIUM	
ON HAND	2351
DEL.	
APPL.	
TOT.	2351

Highway Repair Foreman

Highway Maintenance Foreman

CONVERSION FACTOR

1 Cubic Yard Sand = 1.5 ton(3000lbs.)

1 Cubic Yard Salt = 1.0 ton(2000lbs.)

1 Cubic Yard Premix = 1.0 ton(2000lbs.)

MAINTENANCE COPY

DISTRICT FIVE MATERIALS EXPENDITURE REPORT

WEEK # #35 ENDING 3/1/03

SECTION 5723 LOCATION WAREHAM

		SALT		SAND		PREMIX			
DATE	DAY	APPLIED	DELIVERED	APPLIED	DELIVERED	APPLIED	DELIVERED	ACCUM.	CMA
Feb 23	Sunday	30		10		—		F	
24	Monday								
25	Tuesday								
26	Wednesday								
27	Thursday								
28	Friday								
MAR 1	Saturday	30		10		—		Trace	
~~[illegible]~~	TOTAL	60		20		-			

	SALT	SAND	PREMIX		CMA
Tons On Hand Last Report	716	328	0		13
Tons Delivered	—	—	—		—
Total	716	328	0		13
Tons Applied	60	20	—		—
Tons On Hand	658	308	0		13

Accumulation: Inches D - Drifting F- Frost I- Ice

NOTE: To estimate materials on hand: 135 tons per 12' bay at water level

LIQ.CALCIUM	
ON HAND	2351
DEL.	
APPL.	
TOT.	2351

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Balance On Hand shown on this report should equal the amount of material you have.

CONVERSION FACTOR

1 Cubic Yard Sand = 1.5 ton(3000lbs.)

1 Cubic Yard Salt = 1.0 ton(2000lbs.)

1 Cubic Yard Premix = 1.0 ton(2000lbs.)

Highway Repair Foreman

Highway Maintenance Foreman

DISTRICT FIVE MATERIALS EXPENDITURE REPORT

WEEK # #36 ENDING 3/8/03

SECTION 5723 LOCATION WAREHAM

DATE	DAY	SALT APPLIED	SALT DELIVERED	SAND APPLIED	SAND DELIVERED	PREMIX APPLIED	PREMIX DELIVERED	ACCUM.	CMA
Mar 2	Sunday	60		15					1
3	Monday	60		15					1
4	Tuesday								
5	Wednesday								
6	Thursday	30 230		10 50				F 7½	3
7	Friday	70		20				—	0
8	Saturday								
	TOTAL	470		110					5

	SALT	SAND	PREMIX		CMA
Tons On Hand Last Report	658	308	0		13
Tons Delivered	—	—	—		—
Total	658	308	0		13
Tons Applied	470	110	—		5
Tons On Hand	180	198	0		8

Accumulation: Inches D - Drifting F- Frost I- Ice

NOTE: To estimate materials on hand: 135 tons per 12' bay at water level

LIQ.CALCIUM	
ON HAND	2351
DEL.	
APPL.	
TOT.	2351

This report is to be submitted to the Snow and Ice Control Engineer every Monday morning regardless of activity from the first Material Delivery to the end of April. On back of sheet list P.O. numbers for sand and salt delivery received

Balance On Hand shown on this report should equal the amount of material you have.

CONVERSION FACTOR

1 Cubic Yard Sand = 1.5 ton(3000lbs.)
1 Cubic Yard Salt = 1.0 ton(2000lbs.)
1 Cubic Yard Premix = 1.0 ton(2000lbs.)

Highway Repair Foreman

Highway Maintenance Foreman

MAINTENANCE COPY

DISTRICT FIVE MATERIALS EXPENDITURE REPORT

WEEK # #37 ENDING 3/15/03

SECTION 5723 LOCATION WAREHAM

DATE	DAY	SALT APPLIED	SALT DELIVERED	SAND APPLIED	SAND DELIVERED	PREMIX APPLIED	PREMIX DELIVERED	ACCUM.	CMH
3-9	Sunday								
10	Monday		406						
11	Tuesday								
12	Wednesday								
13	Thursday	200		40		0		3"	3
14	Friday	50		10					1
15	Saturday								
	TOTAL	250	406	50		0			4

			SALT	SAND	PREMIX		CMA
Tons On Hand Last Report			180	198	0		~~13~~ 8
Tons Delivered			406	—	—		—
Total			586	198	0		~~13~~ 8
Tons Applied			250	50	—		4
Tons On Hand			336	148	0		~~9~~ 4

Accumulation: Inches D - Drifting F- Frost I- Ice

NOTE: To estimate materials on hand: 135 tons per 12' bay at water level

This report is to be submitted to the Snow and Ice Control Engineer every Monday morning regardless of activity from the first Material Delivery to the end of April. On back of sheet list P.O. numbers for sand and salt delivery received Balance On Hand shown on this report should equal the amount of material you have.

LIQ.CALCIUM	
ON HAND	2351
DEL.	
APPL.	
TOT.	2351

CONVERSION FACTOR

1 Cubic Yard Sand = 1.5 ton(3000lbs.)
1 Cubic Yard Salt = 1.0 ton(2000lbs.)
1 Cubic Yard Premix = 1.0 ton(2000lbs.)

[signature]
Highway Repair Foreman

Highway Maintenance Foreman

MAINTENANCE COPY

DISTRICT FIVE MATERIALS EXPENDITURE REPORT

WEEK # #38 ENDING 3/22/03

SECTION 5723 LOCATION WAREHAM

DATE	DAY	SALT APPLIED	SALT DELIVERED	SAND APPLIED	SAND DELIVERED	PREMIX APPLIED	PREMIX DELIVERED	ACCUM.
	Sunday							
	Monday							
	Tuesday							
	Wednesday							
	Thursday							
	Friday							
	Saturday							
	TOTAL							

			SALT	SAND	PREMIX		CMA
Tons On Hand Last Report			336	148	0		4
Tons Delivered			—	—	—		45.03
Total			336	148	0		49.03
Tons Applied			—	—	—		—
Tons On Hand			336	148	0		49.03

Accumulation: Inches D - Drifting F- Frost I- Ice

NOTE: To estimate materials on hand: 135 tons per 12' bay at water level

This report is to be submitted to the Snow and Ice Control Engineer every Monday morning regardless of activity from the first Material Delivery to the end of April. On back of sheet list P.O. numbers for sand and salt delivery received Balance On Hand shown on this report should equal the amount of material you have.

LIQ.CALCIUM	
ON HAND	2351
DEL.	
APPL.	
TOT.	2351

CONVERSION FACTOR
1 Cubic Yard Sand = 1.5 ton(3000lbs.)
1 Cubic Yard Salt = 1.0 ton(2000lbs.)
1 Cubic Yard Premix = 1.0 ton(2000lbs.)

Highway Repair Foreman

Highway Maintenance Foreman

DISTRICT FIVE MATERIALS EXPENDITURE REPORT

WEEK # #39 ENDING 3/29/03

SECTION 5723 LOCATION WAREHAM

		SALT		SAND		PREMIX		
DATE	DAY	APPLIED	DELIVERED	APPLIED	DELIVERED	APPLIED	DELIVERED	ACCUM.
	Sunday							
	Monday							
	Tuesday							
	Wednesday							
	Thursday							
	Friday							
	Saturday							
	TOTAL							

			SALT	SAND	PREMIX		CMA
Tons On Hand Last Report			336	148	0		49
Tons Delivered			—	—	—		—
Total			336	148	0		49
Tons Applied			—	—	—		—
Tons On Hand			336	148	0		49

Accumulation: Inches D – Drifting F- Frost I- Ice

NOTE: To estimate materials on hand: 135 tons per 12' bay at water level.

LIQ.CALCIUM	
ON HAND	2351
DEL.	
APPL.	
TOT.	2351

This report is to be submitted to the Snow and Ice Control Engineer every Monday morning regardless of activity from the first Material Delivery to the end of April. On back of sheet list P.O. numbers for sand and salt delivery received

Balance On Hand shown on this report should equal the amount of material you have.

CONVERSION FACTOR
1 Cubic Yard Sand = 1.5 ton(3000lbs.)
1 Cubic Yard Salt = 1.0 ton(2000lbs.)
1 Cubic Yard Premix = 1.0 ton(2000lbs.)

Carl P. Joy
Highway Repair Foreman

Highway Maintenance Foreman

DISTRICT FIVE MATERIALS EXPENDITURE REPORT

WEEK # #40 ENDING 4/5/03

SECTION 5723 LOCATION WAREHAM

		SALT		SAND		PREMIX			
DATE	DAY	APPLIED	DELIVERED	APPLIED	DELIVERED	APPLIED	DELIVERED	ACCUM.	CMA
3-30	Sunday								
31	Monday	80		30		–		1"	2
4-1	Tuesday								
2	Wednesday								
3	Thursday								
4	Friday								
5	Saturday	50		–		–		ICE	1
	TOTAL	130		30		–			3

	SALT	SAND	PREMIX	CMA
Tons On Hand Last Report	336	148	0	49
Tons Delivered	–	–	–	–
Total	336	148	0	49
Tons Applied	130	30	–	3
Tons On Hand	206	118	0	46

Accumulation: Inches D - Drifting F- Frost I- Ice

NOTE: To estimate materials on hand: 135 tons per 12' bay at water level

LIQ.CALCIUM	
ON HAND	2351
DEL.	
APPL.	
TOT.	

This report is to be submitted to the Snow and Ice Control Engineer every Monday morning regardless of activity from the first Material Delivery to the end of April. On back of sheet list P.O. numbers for sand and salt delivery received. Balance On Hand shown on this report should equal the amount of material you have.

CONVERSION FACTOR

1 Cubic Yard Sand = 1.5 ton(3000lbs.)
1 Cubic Yard Salt = 1.0 ton(2000lbs.)
1 Cubic Yard Premix = 1.0 ton(2000lbs.)

Paul E. [signature]
Highway Repair Foreman

Highway Maintenance Foreman

DISTRICT FIVE MATERIALS EXPENDITURE REPORT

WEEK # #41 ENDING 4/12/03

SECTION 5723 LOCATION WAREHAM

		SALT		SAND		PREMIX			
DATE	DAY	APPLIED	DELIVERED	APPLIED	DELIVERED	APPLIED	DELIVERED	ACCUM.	CMA
4-6	Sunday								
7	Monday	89	104.24	20		—		3"	2
8	Tuesday	90		20		—			2
9	Wednesday								
10	Thursday	20		5		—			1
11	Friday								
12	Saturday								
	TOTAL	200	104	45					6

			SALT	SAND	PREMIX		CMA
Tons On Hand Last Report			206	118	0		46
Tons Delivered			104	←	←		—
Total			310	118	0		46
Tons Applied			200	48	—		6
Tons On Hand			110	70	0		40

Accumulation: Inches D - Drifting F- Frost I- Ice

NOTE: To estimate materials on hand: 135 tons per 12' bay at water level

LIQ.CALCIUM	
ON HAND	2351
DEL.	
APPL.	
TOT.	2351

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Balance On Hand shown on this report should equal the amount of material you have.

CONVERSION FACTOR
1 Cubic Yard Sand = 1.5 ton(3000lbs.)
1 Cubic Yard Salt = 1.0 ton(2000lbs.)
1 Cubic Yard Premix = 1.0 ton(2000lbs.)

Carl E. [illegible]
Highway Repair Foreman

Highway Maintenance Foreman

DISTRICT FIVE MATERIALS EXPENDITURE REPORT

WEEK # #42 ENDING 4/19/03

SECTION 5723 LOCATION WAREHAM

		SALT		SAND		PREMIX		
DATE	DAY	APPLIED	DELIVERED	APPLIED	DELIVERED	APPLIED	DELIVERED	ACCUM.
13	Sunday							
14	Monday							
15	Tuesday							
16	Wednesday							
17	Thursday		530.90					
18	Friday							
	Saturday							
	TOTAL							

			SALT	SAND	PREMIX		CMA
Tons On Hand Last Report			110	70	0		40
Tons Delivered			531	—	—		—
Total			641	70	0		40
Tons Applied			—	—	—		—
Tons On Hand			641	70	0		40

Accumulation: Inches D - Drifting F- Frost I- Ice

NOTE: To estimate materials on hand: 135 tons per 12' bay at water level

LIQ.CALCIUM	
ON HAND	2351
DEL.	
APPL.	
TOT.	2351

This report is to be submitted to the Snow and Ice Control Engineer every Monday morning regardless of activity from the first Material Delivery to the end of April. On back of sheet list P.O. numbers for sand and salt delivery received Balance On Hand shown on this report should equal the amount of material you have.

CONVERSION FACTOR
1 Cubic Yard Sand = 1.5 ton(3000lbs.)
1 Cubic Yard Salt = 1.0 ton(2000lbs.)
1 Cubic Yard Premix = 1.0 ton(2000lbs.)

Highway Repair Foreman

Highway Maintenance Foreman